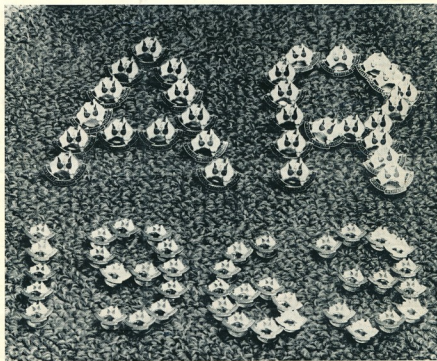


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Vol. 31, No. 1

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★ OUR COVER

A group of W.I.A. lapel badges has been used to form our cover motif. Any member of the W.I.A. may wear a lapel badge; it is not necessary that the applicant possesses a transmitting licence.

FEDERAL COMMENT

★

CONVENTION ITEMS

By a vote of the Federal Council of the Institute, it has been again agreed to hold a Convention at Easter 1963 in Sydney. It is ten years since the last Convention in this city and a bumper Convention is expected. Every member will be well aware that Conventions cost money and will want to be assured that the expenditure is justified. In addition to the cost, a terrific amount of work must go into the administrative preparations for such a meeting of Council.

Most members would assume that the expenditure of some £400 on a Convention could only be truly justified by the number of items received from Divisions for discussion. This, of course, is largely the case, but perhaps the most important aspect of a Convention is the meeting of the Divisional representatives themselves and their awareness of every other representative's problems which are best given by discussion informally.

Nevertheless, the meat of the Convention are the items submitted by the Divisions and the formation of future policy of the Institute by the delegates. Divisions, and particularly members of the Divisions, must now prepare their briefs for their delegates and forward agenda items to the Executive for action. Not much time remains, so give this matter your urgent attention.

CONTESTS

Since the last war when licences were restored to Amateurs in Australia, the Federal Council has endeavoured to cater for those interested in operation in Contests by organising a number of these events. These have all retained their original popularity, as evidenced by the fact that they still exist and are enthusiastically supported. However, in a number of ways it has been necessary to modernise them from time to time. The Ross Hull, National Field Day, and Remembrance Day events have all been continually under review by the Contest Committee, and more recently, the N.Z.A.R.T. with whom the W.I.A. conduct the VK-ZL Contest on a biannual basis, have seen fit to alter the rules to stimulate continued interest. The advent of a limited licence has to some extent required altered rules to provide for the holder participating in the Contests.

Federal Council have always erred on the side of too few Contests rather than too many, believing this policy to be in the best interests of the Institute. Of recent times, certain representations have been received for an entirely Australian Contest on all-band lines, somewhat similar to the pre-war Fisk Contest, which was most popular in its day. This proposed Contest, if of this type, would be on h.f. bands only and would therefore have to exclude the limited licensees.

The views of members would be welcomed on such a proposal to inaugurate a new Contest of this nature or similar. This could be your contribution, through your Division, to providing an interesting item on the agenda for the Convention.

FEDERAL EXECUTIVE, W.I.A.

CONTENTS

Clamp Tube Modulation—and How It Works	2	Australian V.h.f. Century Club Award	13
A Crystal-Controlled 1296 Mc. Converter	5	Australian D.X.C.C. Countries List	14
A Heavy Duty Portable-Mobile Power Supply	8	Australian V.h.f. Records	21
Practical Pi-Network Design Data	9	Meet the Other Amateur and His Station: Harold L. Hobler, VK-4DO	19
A Stabilised Power Supply for the BC221 Frequency Meter	11	Trade Review: "Telecomponents" Vibrator Module Type 7007	18
Sideband Topics: Less Distortion in G.G.	12	£5/5/- Prize for Selected Photograph	18
Operating Practices	12	Tasmanian Hamfest	24
Monitoring S.s.b.	12	Correspondence	24
VK2AC Makes "QST"	12	Federal and Divisional Monthly News Reports	25
National Field Day Contest, 1963	17	DX	23
Australian DX Century Club Award	13	VHF	22

CLAMP TUBE MODULATION— AND HOW IT WORKS

C. P. SINGLETON,* VK4UX

MOBILE transmitters always seem to take more power from the battery than desirable, and unless a charger is taken along, the worry of keeping the battery charged can become a problem. In order to conserve battery power, various systems of modulation are tried, and some sort of ratio obtained between power drawn from the battery to supply a modulator and final, and the power developed in the aerial. Some of these ratios can be quite staggering.

TYPES OF MODULATION

For example, consider Heising modulation, an inefficient and out-dated method, which is still used. Assume a power amplifier, having 300 volts on the plate at 50 mA., which represents a power input to the p.a. of 15 watts. To modulate this, we will require 7.5 watts of audio. Using a class A modulator, having an efficiency (we will be generous) of 30%, means that the power input to the modulator will be $100 \div 30 \times (15 \div 2)$, or 25 watts.

Remember that a valve operating class A has no grid current at any part of its cycle, so the plate current drain will be constant at all times. Only its efficiency will vary. So now (neglecting, for the sake of clarity, the necessary dropping resistor between modulator and p.a., and also to save lots of figures, we will assume the efficiency of the p.a. to be 100%) we will require 25 watts plus 15 watts, a total of 40 watts, from the power supply to deliver a modulated input to the p.a. of 22.5 watts. This will give us an efficiency rating of power used, to power delivered, of $22.5 \div 40 \times 100\%$, or 55% for a typical Heising modulation system.

Now consider a class B modulator with the same final. Once more we have 15 watts input to the p.a., and we will require 7.5 watts of audio to modulate it. Now the efficiency of class B is a lot better than Heising, but as we are mainly concerned with power used when the p.a. is 100% modulated, we will consider the modulator drain when it is delivering 7.5 watts. From a typical valve table this is 16 watts. So our figures now are, drain from power supply, 15 plus 16 watts, or 31 watts, for a modulated power input to the p.a. of 15 watts plus 7.5 watts, or 22.5 watts. This gives us an efficiency of $22.5 \div 31 \times 100$, or 72.5%.

Of course, to keep the record straight, the modulation transformer and choke used in above examples, are regarded as having no insertion or other losses.

The next type we will consider is Reference Shift. This is an excellent modulator, but I am afraid that a great number of Amateurs who use it, labour under the false impression that its efficiency is astronomical. In actual fact, there is less than 10% difference,

and this occurs when the p.a. is not modulated. In this case Reference Shift is approx. 6% better than class B.

Don't think for one moment that I am decrying Reference Shift, which I have been using since 1952 in various transmitters. If I were building a plate modulated rig and did not have a modulation transformer, I would use Reference Shift. As for Grid, Suppressor, or straight Screen Grid Modulation, none of these would even compare with Single Choke Heising, because we would have to take the plate efficiency of the p.a. into consideration and quite a lot of design care is needed, not to mention adjustment for best results.

CLAMP TUBE MODULATION

Some months back I became the owner of a Type A Mk. III. transmitter, and as there is practically no room to fit a modulation choke, or for that matter, no more than a couple of small valves, I had to think of some system of modulation that did not require much room. As I did not want to exceed the ratings of its power supply, this was quite a problem. So out came my accumulation of years of "A.R.'s" to see what could be used. Clamp tube modulation seemed to be very popular but not enough information was given as to how it worked.

I like to fully understand anything I am associated with, for example, I have been married for 20 years, and my wife thoroughly understands me, and I am still finding new facets regarding her. Wonderful people, women. But this article is on modulators regrettably, so much as I would like to talk about these wonderful creatures, we must push on to more uninteresting things.

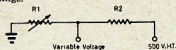


Fig. 1.

Clamp tube modulation at first sight seemed to be comparable with the efficiency of grid modulation, but such is not the case. To digress from modulators for a moment, let us examine the action of a clamp tube. It is generally a triode. Now if sufficient negative bias is applied, the plate current will drop to a very low value, and if the bias were made positive the plate current would rise to a comparatively high value. This variation depends on the type of valve used and what amount of reference bias voltage (if required) is developed across the cathode resistor, if fitted. Now bearing in mind this important fact, it is obvious that the tube can, in effect, be used as a variable resistor to vary the voltage in a resistive network. This is shown in Fig. 1.

Now if this network was altered to a clamp tube set-up, we would replace R1 with a clamp tube as in Fig. 2.

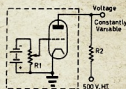


Fig. 2.

By varying the potentiometer across the bias battery, the conductance of the tube can be varied at will and the resultant voltage at the plate of the tube would also vary. Now this is the "intestinal fortitude" of clamp tube modulation. So now we can actually get to designing this modulator, and for the moment, it will take the form as shown in Fig. 3.

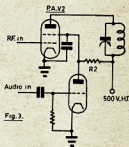


Fig. 3.

Now if audio is fed into the grid of V1, it will be rectified and appear as bias. This bias, when negative, will decrease the conductance of the tube and increase its resistance and, in turn, raise the voltage at the screen of V2. Now if you are doubtful of this occurring, put a diode in series with the grid of V1 and this will prove to you that only a varying voltage will appear on the grid. In short, if a syllabic voltage (speech) is applied to the grid of V1, the voltage on the screen of V2 will vary at a syllabic rate. Remember this, as there are a few traps.

Remembering that if sufficient bias is applied to the grid of V1, it will cease to conduct and allow the normal voltage (dropped through R2) to appear at the grid of V2; and if no bias voltage was applied, the tube V1 would conduct and reduce the voltage on the screen of V2.

We now have a system whereby we can vary the voltage on the screen of V2 at a syllabic rate. This system can be likened somewhat to single choke Heising, and calls for the screen voltage of V2 to swing between zero and twice its applied voltage.

* 4 Sydney Street, Avy, North Queensland.

Now in order to obtain the correct set-up, two things have to be considered. Firstly, the applied voltage on the screen of V2, with no modulation (V1 conducting), must be half that which would obtain if V1 were not in circuit. This is obtained by applying a reference voltage on the cathode of V1. In my case, it was not necessary. The second thing to consider is that in order to swing the screen voltage between zero and twice its normal applied voltage, we must insert a dropping resistor (R3), suitably bypassed for audio, between the screen of V2 and the junction of V1 and R2. This resistor and condenser serves exactly the same purpose as when it is used for single choke Heising modulation. The circuit now becomes as shown in Fig. 4.

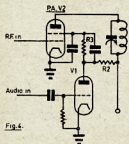


Fig. 4

Now let us see what happens when we apply sufficient audio to the grid of V1 to obtain 100% modulation. Let us assume that without the clamp tube in circuit, the screen voltage is 300 volts and when it is in circuit, and no audio fed to it, the screen voltage drops to 150 volts. Now when the grid of V1 receives a positive peak voltage it will conduct more and so drop the screen of V2 to zero. Now on the negative peak, V1 is biased to give a very low value of plate current and we will have 300 volts on the screen of V2. So now we have met the requirements of plate modulation, as applied to a screen grid, which this actually is.

As the screen voltage on V2 varies, so it will affect the plate current of V2 and give us controlled carrier, which is another important factor in economical operating. With the average tube, such as an 807 or 6L6, the plate current will drop from approx. 35 mA. to around 80 mA.

The efficiency of this system, when compared to others already mentioned, is 100%. Sounds incredible, but please read on before you utter that well known Aussie saying, that's related to tennis. The reason is that when it is fully modulated, there is no power, or very little, consumed by the modulator tube V1. So that for 15 watts input to the p.a., we draw 15 watts plus modulator drain (practically nil), which gives us 15 watts output. Hard to believe, isn't it? I could not believe it either, but I have verified this fact.

Now you have noticed that I have referred to syllabic voltage. In order to obtain this, the time constant of the coupling condenser and grid leak of V1 must be fast. At least 1/100 second. I did have it 1/100 second, but checking it with a v.t.v.m., noticed a slight momentary increase of V2 plate cur-

rent after the modulating tone was removed. Increasing the time constant eliminated this.

One important thing that is more often than not neglected with plate modulation is that of correct time constant of the screen grid by-pass condenser of the p.a. If it is incorrect, that is, too slow, it can give the impression that the matching between modulator and p.a. is incorrect, and if it is a new modulation transformer, one feels inclined to return it to the makers. Dealing with this subject would take another page and as the screen by-pass hasn't got the same job to do, all you have to remember is not to use a too large capacity that will affect the frequency response. So that's less maths. for you when designing clamp tube modulation.

Now for adjusting this system. Unless you are thoroughly familiar with the use of a c.r.o., you will drive yourself up the wall adjusting the modulation percentage. But it is very easy with a v.t.v.m.

ADJUSTMENT

Firstly, adjust the reference bias, if any, of V1 to drop the screen of V2 to half its normal value. Having done that, you then connect the v.t.v.m. to the V2 screen and read the positive voltage. Apply some tone until the screen voltage is 300 volts positive, or twice its unmodulated voltage. Then read the negative peaks, and you should read zero volts, or slightly negative. That's all there is to it.

To sum it all up, this is a most efficient modulator, capable of very good quality and, what is very important, it cannot be overmodulated, because it is impossible to swing the voltage of the screen to more than twice its applied voltage because, brother, you can't get more than 300 volts!

If you check the pattern of this modulator on a c.r.o., don't expect to get a trap. pattern, because you won't. The voltage on the plate of V2 remains constant, but its current varies with variations of screen voltage. In actual practice, the plate current does not quite reach the value obtained with the clamp tube removed, as there will be some current through the clamp tube, even at 100% modulation. But for ease of explanation, I have taken a few liberties, so as to illustrate the operation of this system, without a lot of maths.

One important thing, is that the screen voltage of V2 must be obtained from the same h.t. as that which supplies the plate of V2, because the resistor R2 is, in effect, the load of V1.

Now for the required grid drive to V2. For normal plate modulation, this

is generally 2 to 4 times cut off, depending on how much a purist you are. But for c.w. ratings, it can be less. The reason being, say you have 500 volts at 100 mA. input. This is 50 watts for c.w. Now if you modulate this with plate modulation, then the plate voltage of the final will swing between zero and 1,000 volts, and the current will swing between zero and 200 mA. So peak power input to this p.a. at 100% modulation is 200 watts, or four times that of its unmodulated value. So you will require extra drive to look after the extra 150 watts. But with clamp tube operation, we only require the drive requirements that will obtain if the tube were being operated as a c.w. final.

I have stated that the efficiency of this system is 100%. But remember, I am comparing it with other systems, taking this system of modulation as 100%. Table 1 gives actual efficiency figures, taking a known value of power to the aerial. Power used being the p.a. power, plus the mod. power. The efficiency of the p.a. as far as r.f. is concerned will be taken as 60% in all cases.

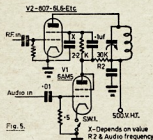


Fig. 5

So you can see that clamp tube modulation is 21% more efficient than reference shift for the same modulated power to the aerial. This percentage figure is based on the power used, to power out figures of 87% and 51% respectively. Comparing it with Heising modulation on the same basis, the increase in efficiency is 50%.

When tuning up the p.a., the clamp tube is open circuited by means of SW1. The clamp tube, if left in circuit, will mask your p.a. tuning. So switch off the clamp tube, load up the p.a. to aerial as usual, switch on V1, when the plate current of V2 will drop to around half its normal value. Adjust the drive to give around 1.5 mA. grid current of V2, and you are in business.

The finished circuit is as shown in Fig. 5. For the pre-amp. I used a 6U8, but lots of other tubes can be used. ●

Type of Modulation	Pwr. to p.a. and Mod. at 100%	Dist. at Zero Mod. %	Carrier Power at 100%	Dist. at Zero	Mod.	Net Mod.	Average
Heising	66w.	66w.	24w.	16w.	40%	27%	33.5%
Class B	48w.	40w.	24w.	16w.	50%	40%	45%
Reference Shift	48w.	30w.	24w.	16w.	50%	53%	51.5%
Clamp Tube	40w.	16w.	24w.	12w.	60%	75%	67.5%

Table 1.



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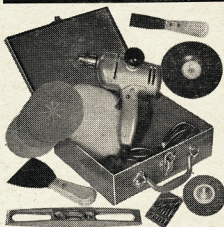
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8WR	8"	" " "	" " "	" " "	7 " "	2 " 12 "	91/3 " " "
12WR	12"	" " "	" " "	" " "	10 " "	4 " 4 "	97/9 " " "



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A CRYSTAL-CONTROLLED 1296 Mc. CONVERTER*

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H. M. MEYER, JR., W6GGV

BECAUSE of the growing interest in 1296 Mc., the author wanted to build a converter for this frequency, but it had to be something without a complex string of multipliers and specially-machined cavities, that could be built and put into operation with a minimum of time and trouble. The result, shown in the photographs, is not too much more of a project than a converter for any of the v.h.f. bands, yet its performance on 1296 Mc. is about all that can be achieved without going to parametric amplifiers.

The injection chain has only two 6J6s and a multiplier diode, using a 57.6 Mc. crystal to give injection on 1152 Mc. The output frequency is 144 Mc., chosen to avoid the need for building a low-noise i.f. amplifier stage as part of the converter. Most v.h.f. men already have good converters on 144 Mc., so the needed low-noise amplification at the intermediate frequency is taken care of easily in this way.

The front end is a simple crystal mixer designed as an integral part of a trough-line assembly. The complete front end is seen from the bottom in the second photograph, with the mixer input line at the top of the picture. The diode multiplier is in the bottom trough. Diode multipliers generate harmonics at all multiples of the driving frequency, so another trough is used to reject frequencies other than the desired 1152 Mc. This middle trough acts like a filter, and as a coupling circuit to the mixer. Aperture coupling is used into this filter, and between it and the mixer.

The mixer crystal is visible in the photograph, centered in the aperture between the mixer and filter troughs. The aperture coupling system does not load the Q of the mixer trough as much as a tapped mixer type, and improved rejection of both unwanted crystal harmonics and out-of-band signals results.

The i.f. tuned circuit, L9 and C7 in Fig. 3, is built into a separate compartment of the mixer assembly, at the right side of the photograph, to provide maximum shielding of the 144 Mc. circuits. Unless good shielding is used at this frequency, a few strong locals on 2 metres can cause a lot of trouble. Details of the mixer assembly metal-work are given in Fig. 1.

OSCILLATOR AND MULTIPLIER CIRCUITS

As may be seen from its circuit diagram, Fig. 2, the vacuum-tube portion of the multiplier chain is very simple. The first stage is an overtone oscillator on 57.6 Mc. The second half of the first 6J6 doubles to 115.2 Mc. This is link-coupled to the grids of a second 6J6, which is a push-push doubler to 230.4 Mc. The 230 Mc. energy is coax-

● The last few years have seen increasing activity on Amateur frequencies above 1000 Mc. Much of this has come about because of the growing realization that equipment for u.h.f. work need not necessarily be extremely expensive or difficult to build. Here is an example, a high performance 1296 Mc. Converter that is well within the capabilities of the average experienced builder of Ham gear.

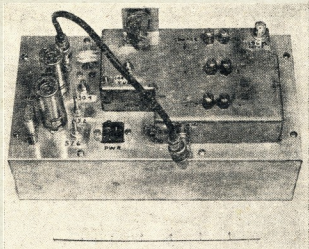
coupled to the multiplier trough, where the diode multiplier output is picked off at the fifth harmonic, 1152 Mc. A fair amount of drive is required to make the diode quintuple effectively, and the 6J6 push-pull doubler provided the most output of any tube tried. Substitutions at this point are not recommended, though almost any dual tube will serve satisfactorily in place of the first 6J6.

theon CK710 worked equally well yielding 300 to 500 microamp., which is more than enough. This permitted detuning the LC network to decrease the crystal current to the value that gave optimum noise figure for the diode used.

These plug-in converter strips are available for the asking, or at the worst at very low prices, at most t.v. service shops in areas where there is or has been u.h.f. television. Several of the diodes have since been used in other work with good results. The author only wishes that he had stumbled on them sooner; they are well worth the going price. Other diodes are undoubtedly suitable, one widely-used type being the Radio Receptor DR-303, also available at moderate cost.

FRONT-END METAL WORK

The front-end assembly is constructed of sheet brass or copper, 0.025 to 0.050 inch in thickness. Brass was used here as it is easy to work and makes a solid assembly. The photograph shows the original model, which was made



★
The 1296 Mc. crystal controlled converter is built on the cover plate of a chassis. The oscillator and multiplier stages at the left are coax-coupled to the crystal diode multiplier, which is built into the penthouse stop the cover plate. The six screws with nylon nuts are for tuning the three half-wave tank circuits. The i.f. output frequency, 144 Mc., is taken off through a B.N.C. fitting not visible in this picture.
★

The diode multiplier is the heart of the converter. The secret lies in the impedance-matching LC network, and in the choice of the diode. Credit for the network and aperture mixing techniques, both essential for successful operation of the converter, rightfully belongs to Bill Troetschel, K6UQH, ex-W7LVO. Several diodes, including the 1N72 and 1N82, were tried, the best producing a maximum of 120 microamperes of mixer crystal current. Diodes were then salvaged from plug-in u.h.f. converter strips for the widely used Standard Coil T.V. tuner. Of these, the C.B.S. 1N133 and the Ray-

with the mixer signal-input cavity slightly shorter than the others. Later work proved this shortening to be unnecessary, so the drawing shows all troughs of equal length.

In making the trough, the sheet metal should be first cut to the dimensions and shape shown in Figs. 1 and 3. Drill all holes and tap where required. Before bending, cut along the line indicated in Fig. 3, then bend as shown. This is easy if you have access to a sheet-metal shop for a nominal fee. In doing the bending yourself, start with the lower lip of the right-hand portion of the assembly first. When the bending

*Reprinted from "QST," September 1962.

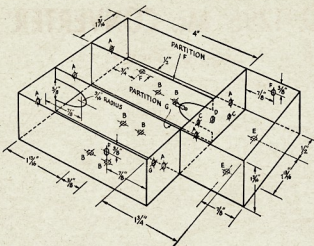
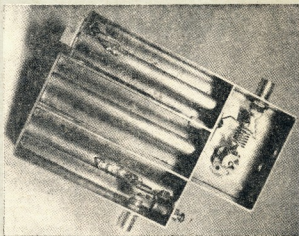


Fig. 1.—Details of the mixer-multiplier trough assembly, as viewed from the bottom. The author recommends 0.025 to 0.050 inch sheet brass, but with minor modifications in design this materials such as flashing copper could be used. Holes are as follows: A—3/8 inch drill, on centre line of each trough. B—No. 28 drill, tapped for 8-32 screw. C—No. 38 drill, tapped for 6-32 screw; to line up with No. 27 holes in capacitor parts. D—5/16 inch drill, on centre line of partition E of Fig. 3. E—1/4 inch drill. F—3/8 inch drill, B.N.C. fitting clearance. G—Trimmer hole, to suit type of trimmer used; location not critical. The notches at the ends of partitions F and G are coupling apertures.



Bottom view of the r.f. end of the 1296 Mc. converter. The multiplier circuit is the bottom trough. Here a diode delivers 1152 Mc. energy when driven at 230.4 Mc. by the oscillator-multiplier stages. The top trough is the 1296 Mc. mixer. Separating the two is an 1152 Mc. filter and coupling circuit. The mixer crystal may be seen in the aperture between the filter and mixer sections. The small compartment at the right houses the 144 Mc. output circuit.

is completed, soldering of the joints at A, B, C and D (Fig. 3) with intermediate or hard solder is recommended. Anything from 30/70 to Easy-Flo will do. Partition E is then soldered in place with the same type of solder. Partitions F and G may be soldered with 60/40 soft solder. The harder variety may be used for all work, but it is not recommended unless you are patient, and skilled with the torch.

When the partitions have been soldered in place, insert the coarse-tuning screws, after first having run an 8-32 nylon nut up to the head of each screw. Now solder a large 8-32 brass nut to the end of each screw. Do this quickly and with a minimum of heat, and do not disturb the nylon nuts until the screws have cooled completely. Now insert the fine-tuning screws, each with nylon nuts, as before, but do not solder the brass nuts to these screw ends.

Now insert the 3/8" hollow brass lines in place (in six holes marked A, Fig. 1) and soft-solder. File the inside surface of the i.f. compartment, partition E, completely smooth, so that no sharp projection will puncture the insulation that is part of the u.h.f. bypass capacitor. Next, a contact pin removed from an octal socket is soldered to partition F, at the deepest point of the aperture, to make contact with the tip of the mixer diode. Solder a 2" length of No. 18 wire to the brass plate (see Fig. 4) for making connection to the i.f. output coil later. The combination crystal-retaining plate and u.h.f. bypass capacitor is shown in Fig. 4. This may be assembled with nylon screws as shown, but if these are not available, insulating shoulder washers and brass screws will do equally well.

Next, referring to Fig. 5, the feed-through capacitor, C6, L bracket and closed-circuit jack for monitoring crystal mixer current are mounted as shown in the top-view photograph. The three

B.N.C. connectors are then mounted, along with the 7-turn i.f. coil and tuning capacitor, L9 and C7. The appropriate-sized hole is then carefully drilled in partition E at the end of the multiplier compartment to accommodate the small trimmer capacitor, C4. In the unit pictured, the trimmer capacitor was padded with a small fixed capacitor to bring the tuning range of the trimmer to the proper point. The trimmer pictured is a 0.5-3 pF. unit salvaged from an old t.v. tuner. Use of the next larger size would eliminate need for padding. The small 4-turn coil, L8, is soldered from the B.N.C. connector to the trimmer, and the multiplier diode is soldered to the line approximately 1 1/2" from the inside wall of partition E. The optimum point will have to be determined later on, but this is a good place to start.

Connect the mixer output to the i.f. coil, using the 2" No. 18 lead previously

soldered on the capacitor plate, 1 1/2" turns from the cold end of the i.f. coil. This connection will be adjusted later for maximum output. The i.f. output coupling loop, L10, is installed with loose coupling to the cold end of the i.f. coil.

The 1296 Mc. antenna coupling loop is made of No. 18 bare wire and soldered to the B.N.C. connector. Then it is run parallel to the 3/8" line and grounded to the trough wall. Several methods of input coupling were tried: the loop as described above, a direct tap on the line, and probe coupling. All worked equally well and all are relatively easy to adjust. The probe method is worthy of further mention since, of the three, it appeared to be the least critical to adjust. A 3/16" x 1" piece of brass was soldered edgewise to the centre pin of the B.N.C. connector and adjusted by moving it either closer to or farther from the line.

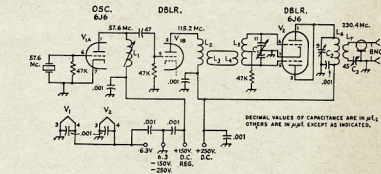


Fig. 2.—Schematic diagram of the oscillator and multiplier section of the 1296 Mc. converter.

- C1—11 pF. butterfly variable.
- C2—9 pF. miniature variable.
- C3—7.45 pF. ceramic trimmer.
- L1—10 turns No. 24 enamel on 3/8 inch iron-slug former.
- L2—6 turns No. 29 enamel like L1.
- L3—2 turns No. 24 enamel around cold end L2.
- L4—Like L3, but at centre of L3. L3, L4 and link of one piece of wire.
- L5—8 turns No. 15, 3/8 inch diam., 5/8 inch long, c.t.
- L6—1 turn No. 18, 3/8 inch diam.
- L7—1 turn insulated hook-up wire coupled to L6.

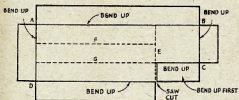


Fig. 3—Bending instructions for the mixer housing. Dimensions are available from Fig. 1. Partitions E, F and G, indicated by dashed lines, are soldered in place after the bending operation is completed. Note that the lower lip of the i.f. output portion at the right should be bent up first.

MULTIPLIER CHAIN

The converter was constructed on the bottom plate of a $5\frac{1}{2} \times 9\frac{1}{2} \times 2\frac{1}{2}$ chassis. No special mounting directions are given here since the techniques are quite straightforward. The bottom view photograph shows the principal layout details. Subsequent models were constructed using a larger chassis. The 1296 Mc. trough assembly was mounted underneath the chassis, instead of on top as shown, to provide a little more shielding. In an effort to achieve greater stability, a longer multiplier chain was tried, to eliminate the third-overtone crystal. However, the unit constructed as shown is readily amenable to the application of more sophisticated techniques if they appear desirable later. If no external multiplier chain is contemplated, mounting the

mixer crystal (a 1N25 is preferable, but almost any of the 1N21, 1N23 series will do nicely), and plug a 0-100 microammeter into the mixer current jack. Couple the multiplier chain to the crystal multiplier with coax and B.N.C. fittings. With power applied to the multiplier chain, a slight deflection should be noted on the meter. If no deflection is noted, check to make sure that the 1296 Mc. bypass capacitor, C5, is not grounded. Caution: Remove the mixer crystal before measuring with an ohmmeter. If there is still no deflection, use a grid dip oscillator tuned to 23 Mc. and lightly couple into the crystal-multiplier trough. Adjust C2 and C3 for maximum dip. A slight indication should now be seen on the microammeter. Adjust the coarse tuning on both the multiplier and filter troughs for maximum meter indication. Change the meter to a 0-1 mA. type and adjust the fine-tuning and trimmer capacitors for a peak crystal-mixer current. Adjust the diode multiplier tap

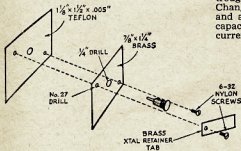
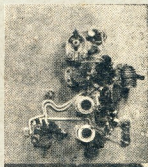


Fig. 4—Details of the mixer crystal mounting and u.h.f. by-pass capacitor. These mount on the left edge of the i.f. output section, as seen in the bottom view. Locations of the mounting holes are not critical, so long as these and the mating holes in the mixer assembly line up. The centre of hole D should line up with the centre line of partition F.

on the trough line for maximum mixer current, being careful not to apply too much heat to the leads of the diode when soldering. A pair of long-nosed pliers will conduct most of the heat away if used to hold the diode pigtail during the soldering operation. When all adjustments have been completed, a reading somewhere between 200 and 500 μ A. should be readily attainable, depending on the type of multiplier and mixer crystal used.

The injection frequency is 1152 Mc., the fifth harmonic of the multiplier chain. The trough will not tune to the fourth harmonic of the driver, but it will tune to the sixth, 1382.4 Mc. If the maximum amount of mixer current you can obtain is of the order of 60 to 100 μ A., you may have tuned the multiplier and filter trough to the sixth harmonic. For this reason it is best to begin tuning adjustments from the maximum-capacity side.



Interior view of the oscillator and multiplier circuits of the converter. The two slug-tuned coils at the lower right are the oscillator and first-doubler plate circuits, L1 and L2. Above is the push-push doubler, with its 1152 Mc. grid circuitry at the ridge edge and the 230.4 Mc. plate and output-coupling circuits at the left and above the tube socket.

crystal underneath the chassis will help to insulate it from external temperature variations.

ADJUSTMENT AND OPERATION

The power supply should deliver 250 volts d.c., 6.3 volts a.c. at 2.5 amp. and 150 volts regulated. An additional power plug may be added to run power to the 144 Mc. converter if desired. Design of the power supply unit is left to the needs of the constructor.

When the trough assembly and multiplier chain have been constructed, apply power to the multiplier and tune up. With the voltage specified, the output at 230.4 Mc. should be capable of lighting a No. 47 pilot lamp to approximately half brilliance. If the output is much less than this, the preceding stages should be checked carefully, and adjusted until the output equals or exceeds the amount required.

The multiplier trough may be pre-set by turning the coarse-tuning screw until it bottoms on the trough line, then backing off approximately one turn. Set the fine-tuning capacitor to a depth of approximately $\frac{1}{4}$ in. in the trough. Set the coarse and fine-tuning adjustments in the filter-mixer trough in the same manner.

The trimmer in the diode multiplier circuit should be set to approximately three-quarter capacity. Insert the

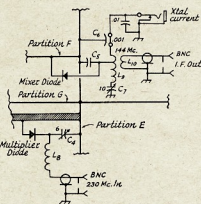


Fig. 5—Schematic diagram of the diode multiplier and i.f. output circuits of the 1296 Mc. converter. Decimal values of capacitance are in pF., others in pF.

- C4—6 pF. plunger-type trimmer.
- C5—U.h.f. bypass; see text and Fig. 4.
- C6—Feed-through capacitor, 0.0005 pF. or larger.
- C7—10 pF. miniature variable.
- L3—4 turns No. 26 enamel, closewound, 1/16 inch diameter.
- L2—7 turns No. 18, $\frac{1}{8}$ inch diameter, 7/16 inch long. Tap at $\frac{1}{4}$ turns.
- L1—2 turns No. 24 insulated hook-up wire inserted between turns of L2. Twist leads to coax fitting.

If you have access to a stable 1296 Mc. signal generator, the rest is easy. A local 1296 Mc. Amateur signal will serve nicely, or you may have to build a 1296 Mc. beacon. This is not too difficult. Use a 54 Mc. third-overtone crystal in a transistor oscillator circuit and feed the output to a diode multiplier trough similar to the one described here. The entire unit can be built in a small box about $2\frac{1}{2} \times 3\frac{1}{2} \times 4\frac{1}{2}$, including the battery power supply.

Pretune the i.f. coil to 144 Mc. with a grid dip oscillator. Connect the i.f. output to a good 144 Mc. converter and the input signal to the converter. Tune the signal trough and i.f. tuning capacitor for maximum signal. Adjust the tap on the i.f. coil for best match. This point will be $\frac{1}{2}$ to 2 turns from the cold end of the coil, depending on the type of mixer crystal used. Carefully position the output pickup link to the point of maximum signal while retuning the i.f. coil each time an adjustment is made.

Next, adjust the input loop or probe for best noise figure, using whatever diode noise generator you may have. You will generally find this point lies

(Continued on Page 8)

¹ Frye, "Adjustment Procedures for V.h.f. Converters," "QST," October 1953.

A HEAVY DUTY PORTABLE/MOBILE POWER SUPPLY

R. HAZLETT,* VK4ZRH

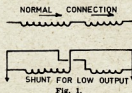
ONE problem with a mobile transmitter in a modern car is how to provide h.t. for prolonged periods without flattening the battery. In addition, to complicate the problem, the power source must be low in cost and dependable in operation.

A possible solution is to utilise disposal motor generators in conjunction with a low powered petrol engine. The latter can be obtained at reasonable cost by adapting the motor from an old lawn mower.

Care should be given to the selection of a suitable motor generator. The main consideration is to choose a unit capable of generating the required voltage at a medium speed of rotation. It is for this reason that a "522" type unit is not recommended because for 300v. out, 6,000 r.p.m. are required. I selected an aircraft type rated at 24/28v. input at 24a. and 1,050v. out at 400 m.A. This output being obtained at 3,000 r.p.m.

Having carefully selected your generator, test it on a battery to ensure that all windings are in good condition. In addition, see that the brushes and commutator are clean. The commutator may be cleaned by the application of very fine glass paper, emery paper should not be used.

Carefully dismantle the motor generator and ascertain which end will have to be connected to the petrol motor for correct rotation. Remove the bearings, and fan if necessary, then electric weld (not oxy.) a piece of mild steel to the armature shaft. A length of 1½" should be suitable. Take care to keep sparks and heat away from all windings. This may be done by wrapping the unit in an old bag, and welding only a small tack at a time.



The new shaft should then be machined, a job that a local engineering shop would do for a small fee.

The unit should then be re-assembled after the bearings have been re-packed in fresh grease.

If a lower voltage is required the two shunt fields should be connected in parallel, as shown in Fig. 1. Take care not to reverse the polarity! It is essential that the polarity be correct, otherwise the unit may not excite when operated as a generator. By connecting the shunt field across a suitable battery, the direction of rotation can be found. This should be marked on the unit and indicated by an arrow.

* 372 Cavendish Rd., Coorparoo, Qld.

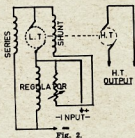
★ The writer provides a possible solution to the problem of providing a heavy duty low cost portable/mobile power supply.

The selection of the petrol motor will depend upon the amount of use required, initial cost and physical size, etc.

Mine is a ½ h.p., four-cycle Briggs & Stratton, as used on a 12v., 300w. lighting plant. A two-stroke unit from an old lawn mower is acceptable, but a four-stroke type is more reliable. A suitable silencer will greatly reduce the noise.

Take precautions against contacting the h.t. output from the generator, or fumes from the engine. Never test in an enclosed space. Carbon monoxide will kill without warning.

The generator is coupled to the petrol engine by means of a 2" piece of rubber hose, not plastic. The two ends are clamped by clips, sold by garages as muffler clamps. The generator is connected as shown in Fig. 2. The (carbon pile) regulator will assist to hold the voltage output steady on a wide range of engine speeds. It is virtually noise free and is available from disposal sources.



Connect the field lead to the armature brush, and the unit is ready for test.

If, on testing, the generator will not excite, connect a 12v. battery across the LV terminals ("input"—Fig. 2). If the motor slows down then the generator is working and charging the battery. Upon disconnecting the battery the generator should continue to be self excited. If this does not happen, then reverse the polarity of the battery and try again. If this also fails, check the brushgear to ensure that it is bedding down correctly upon the commutator. Spare brushes can be obtained from disposal sources or electrical merchants.

By the addition of a solenoid starter, electric fuel pump and/or coil ignition, the unit can be made self starting. This is achieved by connecting a 12v. bat-

tery across the LV terminals. Such a means is suitable for petrol units up to 1 h.p. rating. The series winding must be used.

Voltage regulation is assisted by the addition of the carbon pile regulator and, if possible, by the use of a petrol unit equipped with a governor. A VR tube(s) connected across the h.t. output will provide a suitably regulated source for connection to the transmitter v.f.o.

Filtering is required on both the l.t. and h.t. leads. All connections should be short, heavy duty shielded leads. The leads between the brush holders should be kept short.

Using the units specified, the performance is as follows:—

	L.T.	H.T.
1,000 r.p.m.	6v.	250v.
1,500 r.p.m.	12v.	500v.
2,250 r.p.m.	18v.	750v.
3,000 r.p.m.	24v.	1,000v.

If a heavy load is required from the LV output, it should be connected directly across the brush holders. The series field is in reverse polarity for generating, which is only acceptable for small loads.

It will be realised that this unit when built can be used as a battery charger and/or a lighting plant.

My unit will fit comfortably under the bonnet above the steering box in a Holden car. Possibly a similar position could be used in other makes of cars.

This generator has been used with a "522" transmitter for the Scouts' Walk-around through the Lockyer Valley. It has also been pressed into service for hidden transmitter hunts.

Incidentally, by placing a 60 watt, 250v. electric light globe in series with the h.t., 300v. output and illumination is supplied. Be seeing you!



A CRYSTAL CONTROLLED 1296 Mc. CONVERTER

(Continued from Page 7)

in the direction of greater coupling from the position of maximum signal strength. When the input circuit has been adjusted for optimum noise figure, vary the crystal mixer current from 50 μ A. to the maximum available. Make comparative noise-figure measurements for every 20 μ A. increase in mixer current. You will probably find the best noise figure occurs between 150-200 μ A. with very little change for values between 200 and 500. You are now in business with a 1296 Mc. converter.

It is appropriate to mention a word of thanks to K6UQH, K6ONM and W6VSV for the help and time they have given in getting this project under way.

PRACTICAL PI-NETWORK DESIGN DATA*

E. H. MARRINER, W6BLZ

● The problem of designing a pi-network output circuit for a transmitter is a thorny one for many Amateurs. The author has removed the need for all but the simplest calculations and has boiled the entire process down to a series of graphs.

MANY modern transmitters use a pi-network tank because it can conveniently match most low impedance lines. Most frequently it feeds a 52 ohm line.

Experimenters, building transmitters using various output tubes, find it difficult to calculate the values of the pi-network components. To make the task simpler, a series of graphs have been constructed so that the components can be determined in inductance and capacitance values directly, rather than reactance values given in most reference texts.

A set of curves is provided for each Amateur band and are calculated for the lowest frequency used in that band. The curves are based on a 52 ohm output which is most commonly used. Two sets of curves are provided for each band, one for the inductance value and one for the capacitance values. The graphs are constructed for three values of Q: 10, 15 and 20.

A high Q tank circuit provides excellent harmonic attenuation but reduced efficiency, while a low Q tank circuit gives little harmonic attenuation but higher efficiency. A value of Q should be chosen that provides a compromise and a suitable value would be 15. This would be best since it would help eliminate harmonics and still provide a reasonable tank efficiency.

HOW TO USE THE GRAPHS

Before using the curves it is necessary to determine the plate load resistance of the output tube feeding the network. If, for example, a 6AG7 is used with 300 volts applied and a plate current of 30 mA, results, the following formula would enable determination of the plate load resistance:—

$$R_1 = \frac{E_p}{I_p} \times 500 \text{ or}$$

$$R_1 = \frac{300}{30} \times 500 = 5,000 \text{ ohms}$$

where:

R_1 = Plate load resistance.

E_p = Plate voltage under load.

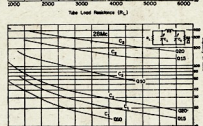
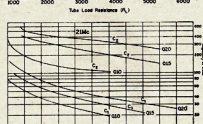
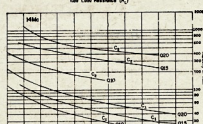
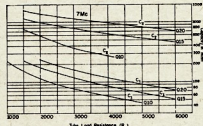
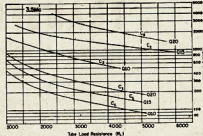
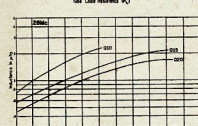
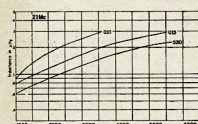
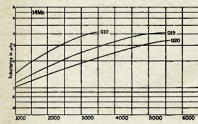
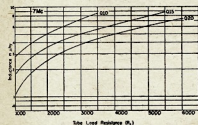
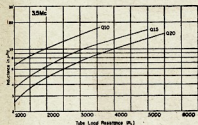
I_p = Plate current under load.

If two tubes are paralleled in the output, the value would be divided by two.

Having decided upon the band, the Q and with the plate load resistance known, we are ready to consult the

(Continued on Page 11)

* Reprinted from "CQ," August 1962.



The required inductance value for a pi-network on bands 80 through 10 may be determined from this set of curves. The curves are based on an output impedance of 52 ohms. For a 72 ohm load the values may be increased approx. 3%.

The required capacitance values C1 and C2 for a pi-network may be determined from this set of curves. The curves are based on an output impedance of 52 ohms. For a 72 ohm load, the values may be increased approx. 3%.

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A STABILISED POWER SUPPLY FOR THE BC221 FREQUENCY METER*

MICHAEL J. HUMPHRIES, G3LRQ

PI-NETWORK DESIGN DATA

(Continued from Page 9)

graphs. For a Q of 15 and a plate load resistance of 5,000 ohms in the 3.5 Mc. band, we consult the appropriate inductance graph.

Scan the bottom of the inductance graph until you locate 5,000 ohms. Now follow the line vertically until it intersects the selected Q value (in this case, 15). The intersect point indicates a required inductance of 16 microhenries. The same procedure is followed to determine the capacitance values.

ACQUIRING THE INDUCTANCE VALUE

Now that a value of 16 microhenries has been determined, how may we convert this into an actual coil? Since most Amateurs do not have an inductance bridge, one of the following methods may be employed.

Set the values of C1 and C2 in the transmitter tank assembly to the values indicated by the curves. Connect a 52 ohm non-inductive resistor across the output. Place the coil stick in the circuit and short out turns until resonance is indicated. If a roller type coil is used, rotate it for a resonance indication.

PI-networks can also be tuned by reading the r.f. voltage across each capacitor, tuning the coil for maximum.

Another approach is to use Air-Dux bulk coil stock. Illumitronic Engineering Co., Sunnyvale, California, provides an Inductance Calculator (No. 2) that will show the exact number of turns versus inductance for their complete line of bulk coils.

YOUTH RADIO CLUBS

Important! Those letters have not begun to flow in, naturally, because this is written before they could flow. But please remember the good reasons, both for the Youth Radio scheme and for Amateur Radio generally, and let me have a summary of your activities to date, and some regular reports.

Statistics this month to the solid effort by Tony Shannon (at the school) and club patron Tom 20D at St. Leo's College, Warrington (Sydney). They have 100 (!) members in the club. Two have recently sat for the A.O.C.P. and a bunch of 11 passed the Elementary Certificate. They have produced a Radio Handbooks of 50 sheets which, as well as basic radio, contains interesting projects such as a computer. Tony is off to England in January, but the club is organised to carry on and expects to put a fix on the air early in the new year. Can any other club match this effort yet?

News flash! Arrangements for the award by the Institution of Radio Engineers of an Efficiency Pennant to the most efficient Youth Radio Club are almost completed and full details should be available soon.

Other pieces of news. We won't mention the Jamboree-on-the-Air because you have heard about it elsewhere. Brox Park High, Narrandera High Kingsgrove High, and Canterbury High had successes in Elementary Certificate. De La Salle, De La Salle, De La Salle are worth supporting—they donated surplus equipment. (How good are you club leaders in the art of scrounging? Let me know your tallest story.) Owing to exams and holidays, most high school clubs are ceasing activity, but let's open with new enthusiasm in February. How many have an A.O.C.P. candidate in January? New high school clubs are Farrer Agricultural, Innisfail, Tempe Junior High, Granville, New Bow Scout group, 3rd Gymex, 1st Etalton, Oakleigh (VK408) and Redcliffe Peninsula (Qld.).

Each Division should have all details of the Y.R. scheme but if I can help it all. Interesting speculation. What will have happened to the numbers of Amateur Radio licentiate in 10 years and how will our political strength have changed? 73, Ken VK1KM.

ACCORDING to the official Handbook on the BC221 the power requirements are 6 volts at 850 mA. for the heaters, and 135 volts h.t. at 20 mA. (maximum).

The writer is in possession of a BC221J, and as may be seen from Fig. 1, the cathode of the amplifier valve in this instrument is connected to the "live" side of the heater supply, thus making the use of a.c. for the heaters undesirable.

H.T. SUPPLY

Dealing with the h.t. supply first, it was decided to use a voltage regulator tube of the VR150/30 variety which stabilises at 150 volts for currents up to 30 mA. The circuit of this part of the supply is shown in Fig. 2, and is quite conventional with the possible exception that it employs two 2E1 silicon rectifiers. There are many arguments for and against the use of semi-

At point A the voltage is maintained constant by the Zener diode. In this case an OAZ204 Zener diode was used as this was the only type available when the unit was constructed. The diode stabilised at about 6.5 volts (point A) and this necessitated a potential divider network made up of the 2.7K ohms resistor and 250 ohms potentiometer in series, which was used to set the base voltage of the OC81 to give the required 6 volt output. If a Zener diode type OAZ202 was available, this potential network could be dispensed with.



Fig. 2.—Circuit Diagram of the Stabilised H.T. Supply.

There is one main disadvantage with using transistors in this application, and that is that the collector leakage current varies with temperature, so that until the 2N456 reaches its operating temperature the output voltage may vary. In this case it was found to vary from about 5.7 to 6 volts in the first two or three minutes, and then stabilise. The l.t. supply gave no hum to a full load current of 1 amp.

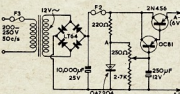


Fig. 3.—Circuit Diagram of the Stabilised L.T. Supply.

The complete supply was mounted in the back of the BC221 case in the space normally occupied by the batteries, the 10,000 μ F. can electrolytic capacitor being mounted in the spare parts compartment.

In conclusion, the writer would like to thank Senor J. R. Zarategui for his invaluable help in the preparation of this article.

L.T. SUPPLY

In the l.t. supply the series regulator configuration is employed as the load current is fairly high. This is achieved by connecting the collector of a 2N456 transistor to the rectified l.t. voltage (at P2 in Fig. 3), the emitter to the load, and the base to a fixed reference voltage which is equal to the required output voltage plus the base-emitter drop of the series transistor. The inclusion of the OC81 transistor gives a lower output impedance, and divides the base current of the 2N456 by alpha of the OC81 (where alpha is the common emitter current gain), hence minimizing the effect of its variations.

* Reprinted from R.S.G.B. "Bulletin," July, '62.

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SIDEBAND TOPICS—BUD POUNSETT,* VK2AQJ

LESS DISTORTION IN G.G.

Have you seen or heard of "73" magazine, edited by Wayne Green, one-time editor of "CQ"? Here is a very good Amateur magazine filled to the brim with constructional information in all fields of our hobby. There are quite a lot of articles on various aspects of sideband and one of these appeared in the September 1962 issue.

Apparently in commercial applications, the popular, amongst Amateurs, grounded grid amplifier does not have low enough distortion figures to warrant its use. This is of importance when independent sideband transmissions are used. I.s.b. is that form of transmission where both upper and lower sidebands are used simultaneously for two separate purposes. Distortion products from the opposite sideband need to be in excess of 60 db. down to be tolerable.

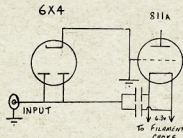


Fig. 1.—Linear Input Loading.

However, a grounded grid linear amplifier presents only a half wave load to the driver, resulting in distortion in this stage which is then amplified by the g.g. stage. Buddy Alvernaz, W6DMN, came up with the answer which is just about as simple as you will ever get. Several types of rectifier tubes can be used to load the driver on the positive half cycle and the 6X4 has the approximate internal resistance to meet the matching requirements. Extra drive is not required. All you need to effect this modification is a 6X4 tube, a 7-pin socket and a few inches of wire. The diagram shows the diode load applied to an 811A grounded grid stage. Already VK3AC and VK2AQJ have installed 6X4 tubes in their finals.

OPERATING PRACTICES

Let us have a look at the current situation on the bands at the moment. Firstly, are we remembering to identify every five minutes? The answer to this one is generally, "Yes". To comply with the regulations, this must be a one hundred per cent "Yes". Even though most of us remember the five minute interval, we very often break the rule on how we identify. Your own call sign is not sufficient, you must also include the other station or stations with whom you are in communication. In between each five minutes, it is not necessary to use call signs

when handing over to the next in line unless you wish to do this to avoid confusion. You may then just use his and your own call. Remember when announcing a string of call signs in a net, that you must include the VK prefix for each call sign.

How often do you hear a net in which each station occupies a different frequency? This adds up to a lot of frustration and waste of time in obtaining repeats. It also destroys the excellent facility of vox to make interjections. The simplest and best approach is to nominate one station as frequency control station and keep your v.f.o. aligned to his frequency. Check this alignment at least every five minutes or more frequently if you suspect that your v.f.o. has any tendency to wander.

Do not break into a net as soon as you hear one in progress, wait until the identification time comes around and slip your own call in at an appropriate moment. While you are exchanging such things as names, locations and signal reports, ask who the frequency control station is. Do not break in if a discussion is in progress of which you have no knowledge or interest. Nothing can ruin an interesting net quite so quickly.

If you are talking across town on any of the bands, try reducing the level into the final amplifier, instead of using all that power that is possibly causing interference to someone else quite a long way away. Here is where a single sideband transmitter has an advantage in that the output can be easily controlled. You should vary the gain of an r.f. amplifier to achieve this, not the audio gain control. By turning the audio back you are sacrificing carrier suppression below peak output.

MONITORING S.S.B.

Was that your signal that was spread across about 30 kc. of the band last week-end? By using effective monitoring of the signal this should never happen. The best monitor is an oscilloscope and it does not have to be an elaborate one. However, an r.f. output meter or field strength meter can be used to indicate the correct level. With the meter method, the procedure is to insert carrier until no increase in output occurs with a further increase in carrier level. Note this level on the meter and then with speech input, adjust the level until the speech peaks reach half of that level. This will be the correct adjustment for the average voice.

The only sure way of monitoring s.s.b. is to watch the envelope pattern on an oscilloscope. The procedure to adopt here is to watch the pattern on the screen and increase the level until the peaks are no longer sharp but are flat across the tops. You will soon see what is the correct picture. Once you have made this adjustment, switch on the automatic level control and your worries are over. All sidebanders who have any respect for their fellows and themselves have a.l.c. working for them.

VK2AC MAKES "QST"

I am sure that all Australian Amateurs and in particular, the sideband gang, join me in extending heartiest congratulations to Leo McMahon, VK2AC, for having his article, "A Phasing Filter S.s.b. Generator" accepted and published in the October "QST". This is indeed an achievement because I believe the Technical Editor of "QST" is very particular to maintain the high standard of technical articles found in the magazine.

Most of us are familiar with this phasing/filter way of generating a signal, having heard Harry VK2AJZ reaping the benefit of Leo's handiwork. It was Harry's "Sideband Package" transmitter on which Leo operated to produce the prototype of this dual method of sideband generation.

Briefly, the idea is to first produce an s.s.b. signal using the phasing method on about 440 kc. This has several advantages, one in particular being that the r.f. phase-shift network is not at all critical and easily adjusted. This signal is then passed through a single crystal lattice filter where a further improvement in unwanted sideband and carrier suppression takes place. The rest of the exciter follows the general design of the sideband package. A 6BU8 tube has been used as a balanced mixer following the crystal filter.

For those of you who may be interested in further details, your attention is drawn to this excellent article by Leo, "Phasing/Filter S.s.b. Generator," on page 38 of the October 1962 "QST."

The Publications Committee wishes every reader the very best for the coming New Year, and trusts that it will bring to each and all, the things that they would want for themselves.

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AUSTRALIAN DX CENTURY CLUB AWARD

OBJECTS

- 1.1 This Award was created in order to stimulate interest in working DX in Australia and to give successful applicants some tangible recognition of their achievements.
- 1.2 This Award, to be known as the "DX Century Club" Award, will be issued to any Australian Amateur who satisfies the following conditions.
- 1.3 A certificate of the Award will be issued to the applicants who show proof of having contacted one hundred countries, and will be endorsed as necessary, for contacts made using only one type of emission.

REQUIREMENTS

- 2.1 Verifications are required from one hundred different countries as shown in the Official Countries List.
- 2.2 The Official Countries List will be published annually in "Amateur Radio" and will be amended from time to time as required. Should a country be deleted from the Countries List at any time, members and intending members will be credited with such country if the date of contact was before such deletion.
- 2.3 The commencing date for the Award is 1st January 1946. All contacts made on or after this date may be included.

OPERATION

- 3.1 Contacts must be made in the H.F. Band (Band 7) which extends from 3 to 30 Mc., but such contacts must only be made in the authorised Amateur Bands in Band 7.

- 3.2 All contacts must be two-way contacts on the same band. Cross band contacts will not be allowed.
- 3.3 Contacts may be made using any authorised type of emission for the band concerned.
- 3.4 Credits may only be claimed for contacts with stations using regularly-assigned Government call signs for the country concerned.
- 3.5 Contacts made with ship or aircraft stations will not be allowed, but land-mobile stations may be claimed provided their specific location at the time of contact is clearly shown on the verification.
- 3.6 All stations must be contacted from the same call area by the applicant, although if the call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area.
- 3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

- 4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.
- 4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.

- 4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.
- 4.4 A check list must accompany every application setting out the details for each claimed station in accordance with the details required in Rule 4.3.

APPLICATIONS

- 5.1 Applications for membership shall be addressed to the Awards Officer, Box 2611W, G.P.O., Melbourne, Vic., accompanied by the verifications and the check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.
- 5.2 A nominal charge of 2/6, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.
- 5.3 Successful applicants will be listed periodically in "Amateur Radio". Members of the D.X.C.C. wishing to have their verified country totals, over and above the one hundred necessary for membership, listed will notify these totals to the Awards Officer.
- 5.4 In all cases of dispute, the decision of the Awards Officer and two members of the Federal Executive of the W.I.A. in the interpretation and application of these Rules shall be final and binding.
- 5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the W.I.A. reserves the right to amend them when necessary.

AUSTRALIAN V.H.F. CENTURY CLUB AWARD

OBJECTS

- 1.1 This Award has been created in order to stimulate interest in the V.H.F. bands in Australia, and to give successful applicants some tangible recognition of their achievements.
- 1.2 This Award, to be known as the "V.H.F. Century Club" Award, will be issued to any Australian Amateur who satisfies the following conditions.
- 1.3 Certificates of the Award will be issued to the applicants who show proof of having made one hundred contacts on the V.H.F. bands, and will be endorsed as necessary, for contacts made using only one type of emission.

REQUIREMENTS

- 2.1 Contacts must be made in the V.H.F. Band 8 (Band 8) which extends from 30 to 300 Mc., but such contacts must only be made in the authorised Amateur Bands in Band 8.
- 2.2 In the case of the authorised bands between 30 and 100 Mc., verifications are required from one hundred different stations at least seventy of which must be Australian. The Amateur Bands 50 to 54 Mc. and 58 to 60 Mc. will be counted as one band for the purposes of the Award.
- 2.3 In the case of the authorised Amateur Band between 100 to 300 Mc. and any authorised band between 200 to 300 Mc., verifications from one hundred different stations for each band is required.
- 2.4 It is possible under these rules for one applicant to receive three certificates, one for each of the authorised Amateur Bands nominated in Rules 2.2 and 2.3.
- 2.5 The commencing date for the Award is 1st June, 1964. All contacts made on or after this date may be included.

OPERATION

- 3.1 All contacts must be two-way contacts on the same band, and cross band contacts will not be allowed.
- 3.2 Contacts may be made using any authorised type of emission for the band concerned.
- 3.3 Fixed stations may contact portable/mobile stations and vice versa, but portable/mobile station applicants must make their contacts from within the same call area.
- 3.4 Applicants, when operating either portable/mobile or fixed, may contact the same station licensee, but may not include both contacts for the same type of endorsement.
- 3.5 Applicants may only count one contact for a station worked as a limited licensee with a Z call sign who is subsequently contacted as a full A.O.C.P. holder.
- 3.6 All stations must be contacted from the same call area by the applicant, although if the applicant's call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area.
- 3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

- 4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.
- 4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.
- 4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.

- 4.4 A check list must accompany every application setting out the following details:—
 - 4.4.1 Applicant's name and call sign, and whether a member of the W.I.A. or not.
 - 4.4.2 Band for which application is made, and whether special endorsement is involved.
 - 4.4.3 Where applicable, the date of change of call sign and previous call sign.
 - 4.4.4 Details of each contact as required by Rule 4.3.
 - 4.4.5 The applicant's location at the time of each contact if portable/mobile operation is involved.
 - 4.4.6 Any relevant details of any contact about which some doubt might exist.

APPLICATIONS

- 5.1 Applications for membership shall be addressed to the Awards Officer, Box 2611W, G.P.O., Melbourne, Vic., accompanied by the verifications and the check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.
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- 5.4 In all cases of dispute, the decision of the Awards Officer and two members of the Federal Executive of the W.I.A. in the interpretation and application of these Rules shall be final and binding.
- 5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the W.I.A. reserves the right to amend them when necessary.

AUSTRALIAN D.X.C.C. COUNTRIES LIST

	Phone	C.W.		Phone	C.W.
AC3		Sikkim	FG7		Guadeloupe
AC4		Tibet	FH8		Comoro Is.
AC5		Bhutan	FI8 (prior 20/7/55)		Fr. Indo China
AP		West Pakistan	FK8		New Caledonia
AP2		Pakistan	FL8		Fr. Somaliland
BV (C3)		Formosa	FM7		Martinique
BY (C)		China	FN (prior 1/11/54)		French India
C9		Manchuria	FO8		Clipperton I.
CE		Chile	FO8		Fr. Oceania
CE9, KC4, LU-Z, VK0, VP8, ZL5		etc., Antarctica	FP8		St. Pierre & Miq. Is.
CE0A		Easter I.	*FQ8		Fr. Equatorial Africa
CE0Z		J. Fernandez Arch.	TL8 (fr. 13/8/60)		Cen. Afric. R.
CM, CO		Cuba	TN8 (from 15/8/60)		Congo Rep.
CN2 (prior 1/7/60)		Tangier	TR8 (from 17/8/60)		Gabon Rep.
CN2, 8, 9		Morocco	TT8 (from 11/8/60)		Chad Rep.
CP		Bolivia	FR7		Reunion I.
CR4		Cape Verde Is.	FS7		Saint Martin
CR5		Portuguese Guinea	FU8, YJ1		New Hebrides
CR5		Principe, Sao Thome	FW8		Wallis & Futuna Is.
CR6		Angola	FY7		Fr. Guiana & Inini
CR7		Mozambique	G		England
CR8 (prior 1/1/62)		Goa	GC		Channel Is.
CR8		Port. Timor	GD		Isle of Man
CR9		Macao	GI		Northern Ireland
CT1		Portugal	GM		Scotland
CT2		Azores	GW		Wales
CT3		Madeira Is.	HA		Hungary
CX		Uruguay	HB		Switzerland
DJ, DL, DM		Germany	HC		Ecuador
DU		Philippine Is.	HC8		Galapagos Is.
EA		Spain	HE		Liechtenstein
EA6		Balearic Is.	HH		Haiti
EA8		Canary Is.	HI		Dominican Rep.
EA9		Ifni	HK		Colombia
EA9		Rio de Oro	HK0		Arch. of San Andres and Providencia
EA9		Spanish Morocco	HK0		Bajo Nuevo
EA0		Spanish Guinea	HL		Malpelo Is.
EI		Rep. of Ireland	HL		Korea
EL		Liberia	HP		Panama
EP, EQ		Iran	HR		Honduras
ET2		Eritrea	HS		Thailand
ET3		Ethiopia	HV		Vatican
F		France	HZ		Saudi Arabia
FA		Algeria	I1, IT1		Italy
FB8		A'dam & St. Paul Is.	I1 (prior 1/4/57)		Trieste
FB8		Kerguelen Is.	I5 (prior 1/7/60)		It. Somaliland
FB8		Tromelin I.	IS1		Sardinia
FC		Corsica	JA, KA		Japan
*FF8		French West Africa	JT1		Mongolia
TU2 (fr. 7/8/60)		Ivory Coast R.	JY		Jordan
TY2 (fr. 1/8/60)		Dahomey Rep.	JZ0		West New Guinea
TZ2 (from 20/6/60)		Mali Rep.	K, W		U.S.A.
XT2 (from 5/8/60)		Voltaic Rep.			
5U7 (from 3/8/60)		Niger Rep.			
5T5 (from 20/6/60)		Mauritania			
6W8 (fr. 20/6/60)		Senegal Rep.			

*Fr. West Africa and Fr. Equatorial Africa: Only contacts dated prior to when the particular area obtained separate listing (as shown) will count.

	Phone	C.W.		Phone	C.W.
KA0, KG6I .. Bonin & Volcano Is.			SP		Poland
KB6 .. Baker, Howland and			ST2		Sudan
Am. Phoenix I. (inc. Canton I.)			SU		Egypt
KC4 .. Navassa I.			SV		Crete
KC6 .. Eastern Caroline Is.			SV		Dodecanese
KG4 .. Western Caroline Is.			SV		Greece
KG6 .. Guantanamo Bay			TA		Turkey
KG6 .. Guam			TF		Iceland
KG8 .. Marcus I.			TG		Guatemala
KG6 (Rota, Tinian, Saipan, etc.)			TI		Costa Rica
Mariana Is.			TI9		Cocos I.
Hawaiian Is.			TJ (FE8) ..		Cameroon Rep.
KH6 .. Kure I.			TL, TN, TR, TT (see after FQ8)		
KJ6 .. Johnston I.			TS (3V8) ..		Tunisia
KL7 .. Alaska			TU, TY, TZ (see after FF8)		
KM6 .. Midway Is.			UA1-6, UN1 ..		Eur. R.S.F.S.R.
KP4 .. Puerto Rico			UA1 ..		Franz Josef Land
KP6 .. Palmyra Group, Jarvis I.			UA2 ..		Kaliningrad Region
KR6 .. Ryukyu Is.			UA9, 0 ..		Asiatic R.S.F.S.R.
KS4B .. Serrana Bank and			UA0 (prior 1/9/60) ..		Wrangel I.
Roncador Cay			UB5 ..		Ukraine
KS4 .. Swan Is.			UC2 ..		White Russian S.S.R.
KS6 .. American Samoa			UD6 ..		Azerbaijan
KV4 .. Virgin Is.			UF6 ..		Georgia
KW6 .. Wake I.			UG6 ..		Armenia
KX6 .. Marshall Is.			UH8 ..		Turkoman
KZ5 .. Canal Zone			UI8 ..		Uzbek
LA .. Bouvet I.			UJ8 ..		Tadzhik
LA .. Jan Mayen			UL7 ..		Kazakh
LA .. Norway			UM8 ..		Kirghiz
LA .. Svalbard			UN1 (prior 1/7/60) ..		Kar-Fin.Rep.
LU .. Argentina			UO5 ..		Moldavia
LX .. Luxembourg			UP2 ..		Lithuania
LZ .. Bulgaria			UQ2 ..		Latvia
MP4 .. Bahrain			UR2 ..		Estonia
MP4 .. Qatar			VE, VO ..		Canada
MP4 .. Trucial Oman			VK ..		Australia
OA .. Peru			VK2 ..		Lord Howe Is.
OD5 .. Lebanon			VK4 ..		Willis Is.
OE .. Austria			VK9 ..		Christmas I.
OH .. Finland			VK9 ..		Cocos Is.
OH0 .. Aland Is.			VK9 ..		Nauru I.
OK .. Czechoslovakia			VK9 ..		Norfolk I.
ON4 .. Belgium			VK9 ..		Papua Terr.
OX, KG1 .. Greenland			VK9 ..		Terr. of New Guinea
OY .. Faeroes			VK0 ..		Heard I.
OZ .. Denmark			VK0 ..		Macquarie I.
PA0, PI1 .. Netherlands			VO (prior 1/4/49) ..		Newf./Lab.
PJ .. Neth. West Indies			VP1 ..		British Honduras
PJ2M .. Sint Maarten			†VP2 (prior 1/6/58) ..		Leeward Is.
PK1, 2, 3 .. Java			VP2 ..		Anguilla
PK4 .. Sumatra			VP2 ..		Antigua, Barbuda
PK5 .. Borneo			VP2 ..		Br. Virgin Is.
PK6 .. Celebes & Molucca Is.			VP2 ..		Montserrat
PX .. Andorra			VP2 ..		St. Kitts, Nevis
PY .. Brazil			†VP2 (prior 1/6/58) ..		Windw'd Is.
PY0 .. Fernando de Noronha			VP2 ..		Dominica
PY0 .. Trindade & Martin Vaz Is.			VP2 ..		Grenada & Deps.
PZ1 .. Netherlands Guiana			VP2 ..		St. Lucia
SL, SM .. Sweden					

† One contact with each group formerly known as "Leeward Is." and "Windward Is." dated prior to 1/6/58 may be credited, in which case no further credit as a separate listing, as from 1/6/58, will be given those particular islands.

	Phone	C.W.		Phone	C.W.
VP2	St. Vincent & Deps.		ZB2	Gibraltar	
VP3	British Guiana		ZC5	Br. North Borneo	
VP4	Trinidad & Tobago		ZC6	Palestine	
VP5	Cayman Is.		ZD1	Sierra Leone	
VP5	Jamaica		ZD3	Gambia	
VP5	Turks & Caicos Is.		ZD4 (prior 5/3/57)	Gold Coast,	
VP6	Barbados			Togoland	
VP7	Bahama Is.		ZD6	Nyasaland	
VP8	Falkland Is.		ZD7	St. Helena	
VP8, LU-Z	South Georgia		ZD8	Ascension Is.	
VP8, LU-Z	South Orkney Is.		ZD9	Tristan da Cunha and	
VP8, LU-Z	South Sandwich Is.			Gough I.	
VP8, LU-Z, CE9	Sth. Shet. Is.		ZE	Southern Rhodesia	
VP9	Bermuda Is.		ZK1	Cook Is.	
VQ1	Zanzibar		ZK1	Manihiki Is.	
VQ2	Northern Rhodesia		ZK2	Niue	
VQ4	Kenya		ZL	Chatham Is.	
VQ5	Uganda		ZL	New Zealand	
VQ6 (prior 1/7/60)	Br. Somalil'd		ZL1	Kermadec Is.	
VQ8	Cargados Carajos Shs.		ZL4	Auckland and Campbell Is.	
VQ8	Chagos Is.		ZM6	Samoa	
VQ8	Mauritius		ZM7	Tokelaus	
VQ8	Rodriguez I.		ZP	Paraguay	
VQ9	Aldabra Is.		ZS1, 2, 4, 5, 6	Rep. of S. Africa	
VQ9	Seychelles		ZS2	Prince Ed. and Marion I.	
VR1 (includ. Canton Is.)	British		ZS3	South-West Africa	
	Phoenix Is.		ZS7	Swaziland	
VR1	Gilbert & Ellice Is.		ZS8	Basutoland	
	and Ocean I.		ZS9	Bechuanaland	
VR2	Fiji Is.		3A	Monaco	
VR3	Fanning & Christmas Is.		3W8, XV5	Vietnam	
VR4	Solomon Is.		4S7	Ceylon	
VR5	Tonga Is.		4W1	Yemen	
VR6	Pitcairn I.		4X4 (from 14/5/48)	Israel	
VS1 (from 1/4/46)	Singapore		5A	Libya	
VS4	Sarawak		5B4 (BC4)	Cyprus	
VS5	Brunei		5H3	Tanganyika	
VS6	Hong Kong		5N2	Nigeria	
VS9	Aden & Socotra		5R8	(Madagascar) Malagasy	
VS9	Kamaron Is.		5T5 (see after FF8)		
VS9	Maldiv Is.		5U7 (see after FF8)		
VS9	Sultanate of Oman		5V (FD)	Togo Rep.	
VU2	India		601, 602 (from 1/7/60)		
VU	Laccadive Is.			Somalia Rep.	
VU	Andaman & Nicobar Is.		6W8 (see after FF8)		
XE, XF	Mexico		7G1 (from 1/10/58)	Rp. of Guinea	
XE4	Revilla Gigedo		9A (M1)	San Alarino	
XT2 (see after FF8)			9G1 (from 5/3/57)	Ghana	
XW8	Laos		9K2	Kuwait	
XZ2	Burma		9K3	Kuwait-Saudi Arabia Neutral	
YA	Afghanistan			Zone	
YI	Irak		9M2	Malaya	
YK	Syria		9N1	Nepal	
YN, YN0	Nicaragua		9Q5 (previously OQ5-0)	Rep. of	
YO	Roumania			The Congo	
YS	Salvador		9S4 (prior 1/4/57)	Saar	
YU	Yugoslavia		9U5 (from 1/7/60 to 30/6/62)		
YV	Venezuela			Ruanda-Urundi	
YV0	Aves I.			Cambodia	
ZA	Albania		9U5 (from 1/7/62)	Rwanda Rep.	
ZB1	Malta		9U5 (from 1/7/62)	Burundi	

NATIONAL FIELD DAY CONTEST, 1963

Saturday, 9th February, and Sunday, 10th February

Dates: Saturday, 9th, and Sunday, 10th February, 1963.

Duration: Saturday, 1800 to 2300 hrs. Sunday, 1000 to 1600 hrs.

Objects: The operators of Portable and Mobile Stations within all VK Call Areas will endeavour to contact other Portable/Mobile and Fixed Stations in Australian and Oversea Call Areas.

RULES

1. There shall be five sections in the Contest:—

- (a) Portable/Mobile Transmitting, Phone.
- (b) Portable/Mobile Transmitting, C.w.
- (c) Portable/Mobile Transmitting, Multiple Operators, Open only.
- (d) Fixed Transmitting Stations working Portable/Mobile Stations, Open only.
- (e) Reception of Portable/Mobile Stations.

2. All Australian Amateurs may take part. Mobile or Portable Stations shall be limited to an input of 25 watts to the final stage. This power shall be derived from a self-contained and fully portable source. A Portable/Mobile Station shall not be located within one mile radius from the home(s) of the operator(s), nor be situated in any occupied dwelling or building.

Portable/Mobile Stations may be moved from place to place during the Contest.

No apparatus shall be set up on the site earlier than 24 hours prior to the Contest.

All Amateur bands may be used, but no cross-band operating is permitted.

3. Amateurs may enter for either (a) or (b), or both, in the Portable/Mobile sections.

4. One contact per station for phone and one for c.w. per band is permitted.

5. Entrants must operate within the terms of their licences and in particular observe the regulations with regard to portable operation.

6. Serial numbers consisting of RS or RST report plus three figures commencing with 001 and increasing by one for each successive contact shall be exchanged.

7. Scoring:—

(a) Portable/Mobile Stations:

For contacts with Portable/Mobile Stations outside entrant's Call Area 15 points
For contacts with Portable/Mobile Stations within entrant's Call Area 10 points
For contacts with Fixed Stations outside the entrant's Call Area 5 points
For contacts with Fixed Stations within the entrant's Call Area 2 points

(b) Fixed Stations:

For contacts with Portable/Mobile Stations outside entrant's Call Area 15 points
For contacts with Portable/Mobile Stations within entrant's Call Area 10 points

8. The following shall constitute Call Areas: VK1 and VK2 combined, VK3, VK4, VK5 and VK8 combined, VK6, VK7, VK9 and VK0.

9. All logs shall be set out under the following headings: Date/Time (E.A. S.T.), Band, Emission, Call Sign, RST/No. Sent, RST/No. Received, Points Claimed. Contacts must be listed in numerical order.

In addition, there shall be a front sheet showing the following information:—

Name Address
Call Sign Section
Call Sign of other operator(s) (if any)
Location of Portable/Mobile Station
From hours to hours
From hours to hours

A brief description of equipment used, bands used and points claimed, followed by the declaration:

"I hereby certify that I have operated in accordance with the rules and spirit of the Contest."

Signed Date
10. The right is reserved to disqualify any entrant who, during the Contest, has not observed the Regulations and the Rules of this Contest or who has consistently departed from the accepted code of operating ethics.

11. The decision of the Federal Contest Committee of the Wireless Institute of Australia is final and no disputes will be entered into.

12. Certificates will be awarded to the highest scorer in each Call Area. Additional Certificates may be issued at the discretion of the F.C.C.

13. Return of Logs:—

All entries must be postmarked not later than the 9th March, 1963, and addressed to the—

Federal Contest Committee, W.I.A.,
Box 638J, G.P.O.,
Brisbane, Queensland.

RECEIVING SECTION

14. This section is open to all Short Wave Listeners in VK Call Areas. The Rules shall be the same as for the Transmitting Stations. Logs shall take the same form as for Transmitting Stations, but will omit the serial number received.

Logs must show the Call Sign of the Station heard, the serial number sent by it, and the Call Sign of the Station being worked.

Only one lot of points can be claimed for any one contact between two stations. For example: VK2AA/P calling VK3XX/P and exchanging numbers. Points can be claimed only for VK2AA/P working VK3XX/P. No points can be claimed for VK3XX/P working VK2AA/P during this particular contest.

Scoring will be on the same basis as for Transmitting Stations. It will not be sufficient to log a station calling CQ. A station may be logged once only for phone and once for c.w. in each band.

Awards—Certificates will be awarded for the highest scorer in each Call Area.

DURALUMIN, ALUMINIUM ALLOY TUBING

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Trade Review

"TELECOMPONENTS" VIBRATOR MODULE TYPE 7007

This is a reliable solid state switching unit, being a direct plug-in replacement for a conventional non-synchronous reed type vibrator in mobile communications equipment.

This model was developed primarily for use in A.W.A. Mobile Power Supplies types H59652 and H130322. Tele-components advise that units suitable for other makes of equipment are under development. The receiver vibrator in the A.W.A. unit operates continuously on both transmit and receive positions and thus the failure rate is high. The 7007 replaces this vibrator.

Operation is by two OC35 switching transistors mounted on aluminium heat sinks which form the side plates of the unit. A feed-back transformer is mounted between the plates. Overall dimensions including plug pins are approximately those of the original vibrator.

Typical collector current peaks under supply voltage conditions of 10 to 15 volts are approx. 5 amps. for switch-on conditions and approx. 4 amps. for

normal running. Under the worst conditions of transient switching and at maximum applied voltage, the peak collector current does not exceed the rating of the OC35s. Both collector current and frequency remain stable over a wide variation of ambient temperature. Frequency falls within the range 95-120 c.p.s.

Dimensions: overall height 4-9/16", base (not symmetrical) 1-7/16 x 1-11/16" x 1".

Price, all States: £5/8/0 plus 12½% sales tax, if conditionally exempt, from Telecomponents Pty. Ltd., 752 Pittwater Road, Brookvale, N.S.W.

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"	3007	"	"	"	6/3
"	3010	"	"	"	7/4
"	3011	"	"	"	7/4
"	3014	"	"	"	8/5
"	3015	"	"	"	8/5
"	3018	"	"	"	10/6
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£5/5/- PRIZE FOR SELECTED PHOTOGRAPH

Come on shutterbugs! Here's a chance to win five guineas.

The Federal Executive of the W.I.A. requires a topical picture to form the background for the production of the John Moyle Memorial National Field Day Contest Certificate.

The selected picture is to be typical of field day operating in the wide open spaces depicting distance and height.

The picture can include equipment and antennae, but not close-ups showing trade names and personalities.

Entries can be any reasonable size on glossy paper. Do not send negatives but keep the negative in good condition for forwarding if your picture is selected.

The negative of the winning selection must be available immediately upon request and must be suitable for enlargement up to full plate. Several negatives may be called for before final selection. Closing date: 1st April, 1963.

The W.I.A. reserves the right of retaining all pictures forwarded and the final selection of negatives.

To enter, post only a picture, enclosing your name and address to:—

Federal Secretary,
W.I.A. Federal Executive,
Box 2611W, G.P.O.,
Melbourne, C.I., Vic.



MULLARD STEREO "TEN-TEN"

This 10 watt per channel stereo-phonc amplifier is a successor to Mullard's popular "Five-Ten" monaural amplifier and, as the demand for circuitry and construction details has been so great since its publication in "Outlook" Mullard decided to reprint in leaflet form. This leaflet is available free from Mullard-Australia Pty. Ltd., Box 2118, G.P.O., Sydney, or their Interstate branches, upon receipt of a stamped, addressed, foolscap envelope.

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Includes sales tax and one dual crystal socket.

455.000 Kc. Crystals, £2/0/0 each, includes sales tax and crystal socket.

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Meet the Other Amateur and His Station

HAROLD L. HOBLER,* VK4DO

THERE are few Amateurs in this country who have not worked or heard VK4DO, the Rockhampton (Qld.) station of Harold L. Hobler, for during an active Amateur career of forty years, over 21,000 QSOs with 245 countries have been entered in his logs.

Harold first built crystal and valve receivers in 1921 and early in 1923 transmitted 240 metre telephony, the band licensed in those days. Electrolytic rectifiers (aluminium and lead in a borax solution) were the vogue in those days, with a self excited coupled Hartley oscillator of one tube in the transmitter, and absorption loop modulation.

From electrolytic rectifiers, progress was made in securing a better d.c. note by the use of Amrad "S" tubes imported from America, and the use of a 500 volt d.c. generator.

In those days everything bar the valves were home made; variable condensers, fixed condensers, coils, rheostats, knobs and dials. Even blocking condensers that withstood 550 volts a.c. came to light from tin foil and paper, rolled up and pressed between card-board.

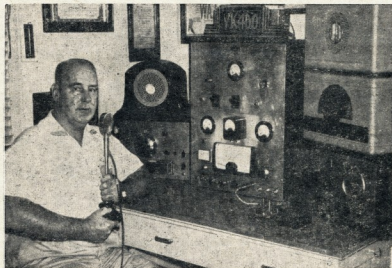
Many receivers were made up, including a one-tube regenerative that repeatedly received broadcasting from America on 317 metres in daylight, a three-tube and five-tube all wave, a two-valve lo-loss with a 1" glass panel (THE rx in those days), and several others.

ing the low power, the following results have been obtained. In June 1926 two-way contacts with U.S.A. using 140 volts on a 201A receiving tube; in the same month heard in ZL (200 miles) using 90 volts high tension and loop modulation. October 1936 W.A.C. in 50 minutes with 48 watts; February 1948 record W.A.C. on phone in 28 minutes with an input of 60 watts.

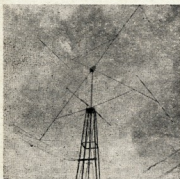
VK4DO was second in Australia in 1924 "Wireless Weekly" Tests; made a foundation member of the Rag Chewers

Club in July 1926; Queensland winner of the 1926 Trans-Pacific Tests, and the Jewell Miles-Per-Watt Contest; in 1937 awarded First Prize by "Short Wave and Television" of U.S.A. for best Amateur Station; worked all U.S.A. States in one year, from August 1946 to 1947; is holder of D.X.C.C., W.A.C., W.A.P., W.A.S., W.A.Z., H.A.R.C.E.N. and other awards, and apart from holding Worked All Zones Certificate for c.w. has qualified for W.A.Z. on phone. Active in R.D., VK-ZL, A.R.R.L. and other yearly contests, his station has gained several places in these over the years, and, incidentally, he holds a First Class P.M.G. ticket.

Forty years is a long time in Amateur Radio, but time has not dimmed the interest of this old timer.



Harold L. Hobler and his Station, VK4DO.



VK4DO's Cubical Quad.

Today the station is as shown in the photograph, the equipment being as follows (left to right): a Kingsley K/CR/11 Rx with speaker above; all band transmitter with single 807 final; bottom right, Hallicrafters Rx, with A.W.A. Rx and speaker above. Automatic key and hand key are on the table. The signal squitter equipment is a cubical quad for 14 Mc., another quad for 21 Mc., and a 10 foot high centre fed V for 7 Mc.

Hal has never been a high power man. Over the years never more than 60 watts have been used and now only half that power is used. Notwithstanding

* 134 Victoria Parade, Rockhampton, Q'land.

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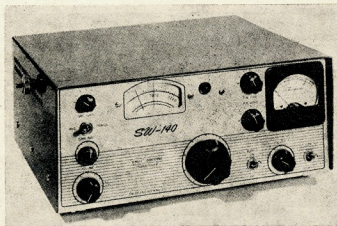
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AUSTRALIAN V.H.F. RECORDS

D. H. RANKIN,* VK3QV

It is appropriate that a short article on Australian v.h.f. records should appear. For this reason, and also because of the number of long distance contacts made over the past 12 months, particularly in the 144 Mc. allocation, some explanation of why records are kept and how to submit a claim for recognition of a contact is in order.

It has become evident to those relatively few v.h.f. operators who have spent some years consistently working on the bands that the majority of active call signs heard change from year to year, and that the achievements of the past become forgotten. Thus, there must be some authoritative source to which the newcomer can refer to ascertain the longest distance worked, or if a certain country or state has been worked on a particular band.

Obviously, then, some responsible body must collect, and keep, a file of such information which of course must be derived from reliable sources. Therefore, some years ago, the Federal Executive of the W.I.A. commenced a collection of contacts made on the bands 50 Mc. and above. The data so collected was, and still is, based on claims made by the actual participants. Appended are those claims currently on file. For the last couple of years, it has been the duty of the author to deal with received claims—collecting the information, having distances checked, and forwarding amendments to "Amateur Radio" and to the various Federal Councils.

Since QSL cards are not always available, or in cases where cards are to hand, but the claimants are reticent about parting with a valuable QSL, then a signed declaration by one of the participants has been deemed acceptable proof of the validity of the claim. The information that must be sent with such a declaration should include the following:—

1. The call sign of the station worked.
2. The band on which the contact was made.
3. The date of the contact.
4. The location of both stations at the time the contact was made. Unless the latitude and longitude are accurately known, the name of the suburb or place should be given with the distance and direction from some well known place nearby, e.g. 10 miles east of the G.P.O., or the location should be given with reference to some prominent geographical feature.

Particular care should be taken when short distances are involved, i.e. for contacts on the u.h.f. bands. All distances are computed from the latitude and longitude figures for each station using Napier's Half Tangent formula or the Spherical Cosine formula.¹ If accurate figures are not given, they are taken from a gazetteer used by the Australian Survey Corps.

From the list below, and comparing it with a similar list that appears in "QST" periodically, it can be seen that particularly for 144 Mc., the Australian records are of world standing. Bettering these distances is no easy task and to help keep interest alive, the best contacts associated with each State for each band as well as other unusual and meritorious contacts have been published in recent issues of "Amateur Radio".²

It is realised that these records are not completely up to date, but if the reliability of the list is to be preserved then nothing much can be done to improve this state of affairs until those who have better claims put them forward. Thus, if you are in this position, for the sake of other v.h.f. operators, if not for your own, submit your claim and let everyone know of your effort. Letters may be sent to the author at the address shown.

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1. "Reference Data for Radio Engineers." An I.T. and T. publication, 4th edition.
2. "Amateur Radio," Vol. 30, No. 7, July 1962, p.22.

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LIST OF DISTANCE CLAIMS

The following is a list of distance claims held on file by Federal Executive of the W.I.A.:—

50 Mc.—

VK3ALZ-JXIFU ..	1/5/59	9418 miles
VK6BE-JABBP ..	30/10/58	5490 "
VK3ABR-JABBP ..	25/2/59	5397 "
VK3BE-JABBP ..	28/3/59	5386 "
VK3CL-WTACS/KH6 ..	26/3/47	5381 "
VK2RU-JAIAAO ..	1/4/56	4809 "
VK4NG-JAIAHS ..	22/1/56	4140 "
VK6KH-VRC2C ..	3/1/55	3835 "
VK6WG-VRC2C ..	3/1/55	3518 "
VK6BE-9M2QC ..	19/4/58	2853 "
VK6DZ-VL3GS ..	26/12/53	2809 "
VK3IM-VK2CB ..	30/12/53	2398 "
VK7BQ/TLZ-VK6DB ..	30/12/53	2305 "

144 Mc.—

VK3ASZ/2-ZL3AQ ..	31/12/61	1342 miles
VK6BE-VK6BO ..	30/12/51	1322 "
VK5GR-VK6BO ..	9/2/52	1319 "
VK3AH-ZL3AR ..	15/12/51	1287 "
VK4HD-VK5ZK/5 ..	27/12/61	1040 "
VK3ZEA-VK4HD ..	27/12/61	994 "
VK3ZC-VK4HD ..	27/12/61	887 "
VK4HD-VK5BC ..	27/12/61	828 "
VK3APF-VK4HD ..	27/12/61	807 "
VK5BC-VK7LZ ..	28/2/59	608 "
VK3AL-VK5BC ..	18/1/58	591 "
VK5BC-VK7PF ..	28/2/59	571 "
VK3ZCW-VK7LZ ..	9/3/52	511 "
VK3GM/3-VK7LZ/TFP ..	9/3/52	311 "

*Now VK3RX.

288 Mc.—

VK3ALZ-VK7LZ ..	10/1/60	262 "
VK3AL-VK3ZCG ..	23/1/61	261 "
VK5RO/5-VK3MT/5 ..	13/4/52	108 "
VK3GM/3-VK3AA/3 ..	29/1/56	79 "
VK3AF/3-VK3AA/3 ..	21/3/54	63 "

576 Mc.—

VK3AKE-VK3ANW ..	11/12/49	80.1 "
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2300 Mc.—

VK3XA-VK3ANW ..	18/2/50	9.0 "
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N.Z.A.R.T. MEMORIAL CONTEST

Australian Results

This Contest (80 metres only) is to commemorate the Silent Keys of World War II. The following are the results of the Australian entries. Certificates have been forwarded to those marked with an asterisk.

	No. of QSOs				
	ZL1	ZL2	ZL3	ZL4	Pts.
*VK2QL	20	17	4	6	378
VK2RA	19	16	2	4	328
VK2VN	14	9	1	5	298
*VK3AKN	19	11	3	2	305
*VK4SS	16	15	6	3	283
VK4H	8	4	3	2	217
VK6CK	4	2	—	1	95
*VK5ZC	7	7	—	2	197
VK5LD	7	4	—	1	153
*VK7SM	19	19	7	8	424
VK7RY	3	4	1	2	140
*L2033	17	15	9	8	433

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Sub Editor: BILL ROPER, VK3ARZ,
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ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Sideband transmissions are at long last becoming more popular on the v.h.f. bands. The 50 Mc. band has had a respectable number of s.b.s. stations operating for some time now. But, until recently, s.b.s. on the 144 Mc. band have been a rarity, due to the best of my knowledge, the 288 Mc. s.b.s. transmitter of Lance 3AHL is the only one on the higher frequencies.

We all know of the advantages of sideband transmissions over a.m. (do we?) At the moment, of course, the frequency saving characteristics of s.b.s. are not of any great importance on v.h.f. Double sideband transmissions do not boast this advantage in any case.

However, the big attraction of sideband is the worthwhile increase in talk-power. For some strange reason this seems to be a tremendous increase over a.m. transmissions of equivalent power on v.h.f.

When you consider the DX that has been worked with modified 522 tx's, etc. running about 10 watts r.f. output, it does not take much thought to realise the capabilities of sideband, particularly when you realise the fact that which sideband power can be amplified to over 100 watts p.e.p.

D.s.b. tx's are extremely easy to construct and are normally easier than a.m. tx and attendant modulator.

However, d.s.b. has the distinct disadvantage that it is much more difficult to tune and to receive the receiving end than other modes, and probably because of this reason, just has not "caught on" in VK land.

My personal prognosis for the non-adoption of v.h.f. notes in the Dec. issue, but unfortunately I spent several days in bed at the crucial time (the absolutely last day for submitting notes for publication) and, influenced, and in all the self-pity completely forgot about the notes until too late. Melbourne's four-seasons-one-day weather permitting, I hope this will not happen again.

The only notes to reach me in time for publication in this issue are those from Roy 3AHM, so I have presented the notes intended for Dec. issue in an edited form.

Does anybody read the v.h.f. notes? In 12 months of subscribing I have received not one single comment or criticism (except to be abused for non-appearance of Dec. notes).

Have you any suggestions for improving the appearance of the v.h.f. page? If so, let me know about your thoughts.

Several months ago I suggested that we introduce a v.h.f. hints and kinks section. Like the "Hints and Kinks" section in the summer, it would be a place where you could get a lot of sound loads of silence. How about it? If you approve send some ideas along to me.

The Ross Hull Contest will be in full swing all over the world. (Has anyone read this far?) Do not forget to submit your log and give the new Contest Committee something to keep them quiet.

You will probably read elsewhere in this magazine of the untimely passing of Tom VK3JTW. Tom was a very keen v.h.f. amateur who was particularly heard and worked in Melbourne on 144 Mc. I am sure that all v.h.f. amateurs will join with me in offering deep sympathy.

Trev. ZL2HP is a very keen 144 Mc. enthusiast and will be looking for contacts with VK on this band during the summer months.

For more details, plus Trev's address, appeared on page 4 of Dec. "A.R."

Finally, a happy and prosperous New Year to you all. I think 1962 will be better than ever. Start the New Year off the right way by enthusiastically participating in the Ross Hull Contest. 73, VK3ARZ.

NEW SOUTH WALES

First may I extend all the best for '63 to all v.h.f. operators everywhere from the VK2 Group. Things have been fairly quiet at this end of the State. Six mx has come to light with a few good openings, bringing DX rewards to the regulars. On 2 mx, many new stations keep appearing, both new call signs and an increasing number of h.f. operators trying to escape some of the problems of 40 and 20 mx.

The regular field events have been held and the Nov. night fox hunt produced some 18 cars containing between 50 and 60 people. The fox for the evening were 2APQ and 2SW, who were still hiding on the headland above the Lugarno ferry when Dick 2ZCO appeared in record time. Grahame 2ZXY was close behind, just beating Bob 3QA. After that it was a matter of bringing the rest in from many sides of Sydney. By the way, anybody who is willing to swap a couple of navigators for some automatic d.f. equipment?

It would be a good idea in 1963 for all Groups to get together on the dates for field days. In VK2 the second Sunday of each month is generally used for day events, while the night hunt is on the fourth Wednesday night at 8 p.m.

There will now V.h.f. Group meeting held in January, many of our members being away on holidays. The night fox hunt will be the 3rd with Grahame 2ZCO and John 2ZOO hiding the rig plus half a dozen batteries—must be a long trip to the south if the starting point is the Sydney Reservoir. Looking Parramatta River holds any clues. Next month Basil 2ZLB will be back from leave and pushing the pen for notes for this page. 73 Tim.

VICTORIA

40 Mc.: The only activity reported on this band during Oct. were openings to VK4 on 28th, 29th and 30th. Several VK4s took part in the mx scramble on that evening (Sun. 29th), the result being a draw between Neil 2ZJN and John 3ZLQ. In all, 14 stations participated in the scramble, making it the most successful for some time.

144 Mc.: The northern direction from Melbourne has produced quite a lot of good contacts of late. Rex 3VL at Nunmurk has worked Alan 2ZAB at Bingham and Peter 3ZLT in Melb. Rex looks for Melb. stations at 8.30 each evening and is usually to be heard working 3ZLT. Peter also has had contacts with Sid 3C at Nagambie, Peter 3AFT at Shepparton, 3ACK at Mooroporo and has heard 3ZOG at Yarrowonga and 2ZCI at Leeton. 3AX at Bingham has come back in Melb. early in Oct., but is believed to be having antenna troubles. Ray has lent Greg 3AWT at Waaia a small mx tx but Greg is not sure of the frequency.

As well as 2ZCI at Leeton, there is 2ZCB, also at Leeton, and 2ZEC at Griffith and all of them are believed to have worked as far south as 2ZAD at Bingham. Here is a list of approx. freq. of these stations: 3VL 141.4, Sid 3CI 144.17, 3AFT 144.17, 3ACK 144.18, 2ZCI 144.8, 3AX 144.3, 3AWT 144.24, 2ZCB 144.17, and 2ZEC 144.62.

It may be useful to list the monthly v.h.f. activities. They are as follows: 2nd Sunday of each month 2 mx scramble, 3rd Sunday 2 mx scramble, 4th Wednesday mx fox hunt, and the 3rd Wednesday V.h.f. Group meeting. Both scrambles commence at 1945K, the fox hunt at 2000K. In College Street, near the University, and the V.h.f. Group meeting at 2000K at the rooms at 478 Victoria Pde., Melbourne. The next contest is advertised in the Publicity Officer, 3ZLT finally settled down at 4 Waratah St., Thomastown. If you have any news to be publicised in VK3 drop a line to Jim 3ZLW in College Street on Friday evenings between 1900 and 2000 hrs. 73, 3ZLT.

QUEENSLAND

The month ending 31/10/62 provided some good DX openings in VK4. On 8/10/62 VK3 stations were audible at good strength, with a very number of stations working. On 13/10/62 till 17/10/62 the path to Japan was open from Brisbane with stations audible for two to three hours daily.

The best opening was on the 16th with JASIK the strongest station, peaking at 89 plus with QSB to 56. The lack of JA stations working was limiting factor of the openings. JA1J-3-4-5-6 were the calls worked.

VKANG in Rockhampton has been working Japan quite often recently, one novel mobile station worked by a JA running 60 watts on a 2E3C final, with the station mounted on a motor-bike. There have been more JA DX openings in North Queensland, with the openings in Brisbane getting fewer. In the last few days of Oct. short openings to VK2-3-4 have taken place with strong signals for the duration of the opening.

50 Mc.: No DX has been heard on 144 Mc. and the VK4 gang are looking for more DX contacts during the coming season.

A new station on the 50 Mc. band is Frank 4ZAS, who is using a converted 322 tx with a home-built rx and a cubical quad aerial. A new station on the 50 Mc. band is coming to 50 Mc. until operation without coming over 2 Mc. away has been tried. 73, 4ZAW.

SOUTH AUSTRALIA

30 Mc.: The exceptional conditions on this band over the past few months have attracted a large number of newcomers. These include: John 3ZJG, Peter 3ZEEZ, Bevan 5ZCS, Ian 5ZIC, Dave 5DS and Harry 5KW. Another newcomer is Bob 5ZRM who is the brother of Colin 5ZDE. Peter 3ZEEZ mentioned earlier is the brother of George 3ZJY.

Jack 5ZJS is building a v.f.o. for 50 Mc. and Bob 5ZDX is building a phasing type v.f.o. for 50 Mc. Harry 5KW is located next door to Bob 5ZJT, so by the time you read this, Bob should be well and working up the wall, as Harry is running 70w. Colin 5ZDB has a very interesting mobile 60 Mc. This unit can run either a.m. or d.s.b., the latter giving approx. better S/N ratios.

Activity on this band has been excellent. During October VK4-6 were worked, the first two on several occasions. 5ZVL was the first on 5.5 Mc. on 10/10/62. A few JA calls were heard. Bob 5ZDX called several stations but unhappily no contacts were made. One of the more interesting signals heard from 144 Mc. in Adelaide was from 3ZAW.

There has been considerable speculation regarding this beacon, but no one seems to have definite information.

30 Mc. and only Amateur Station at Woomera, 5WC has built gear for 50 Mc. and is on every evening from 1815 to 1930 hrs. 20 Mc. on 50 Mc. looking for contacts. No details of gear.

144 Mc.: Activity on this band should now pick up considerably as Mick 5ZDR is back in Adelaide after his c.v.h. tour of the bush. Also new country stations have come up on 144. These include 5NW at Crystal Brook (30w), 5ZLH (30w) and 5EN at Port Pirie. Both of these calls have been heard in Adelaide with good signals (both 130 miles away). New stations on 144 Mc. in Adelaide include 5ZEY.

General News: Many limited licensees are sitting for the c.v.h. exam. Last exam saw 5ZML, 5ZJG, 5ZCC, 5ZDC, 5ZDN, 5ZMK and 5ZBK's XYL ROY. Most seem optimistic 5ZCI, 5ZLW and 5ZLW. Trevor 5ZTX are newcomers on 288 Mc. 5ZAD's v.f.o. for 8 mx is working nicely. Gary 5ZC is building s.b.s. for the low bands. Keith 5ZMK and John 5ZHR have acquired new gear. There are at least three active v.h.f. stations in Mt. Gambier now: 5ZER, 5ZGS and 5ZLS. Dale 5ZLW has 2 mx and is looking for a pleasure to keep an ear open for these boys. 73, 5ZCR.

TASMANIA

The Convention to be held in this State took place at Campbell Town on 24th Nov. and a good number of v.h.f. experts attended to contest the many events.

For more details, plus the list of provided between h.f. stations participating in the Jamboree on the Air, information regarding h.f. contacts being relayed back to VKW for publicity purposes. Note that this type of work is to work in when the official frequency crystals finally arrive.

Several of the v.h.f. stations have fired up on this band recently. They are Rick 7ZAT and John 7ZOO. I have not heard Rick yet but I understand he has a pair of 7150 and a t.v. turret

(Continued on Page 24)

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

S.S.B. POWER MEASUREMENTS

Editor "A.R.", Dear Sir,

I supply the remarks of VK3CS in his article on s.s.b. power measurement. To anyone who has had any experience with s.s.b. peak power measurement by the oscilloscope method is the only logical approach to the measurement of power in the s.b. final amplifier.

The snag of course is the time and the complexity of equipment involved in making a measurement, although as VK3CS pointed out, every s.b. station has, or should have, a c.r.o. and audio sig.-gen. at hand. Yes even the users of commercial gear.

From the point of view of simplicity, the P.C.C. method has a lot to recommend it, but is hardly a precise method.

From where I stand, the policy I would prefer the Department to adopt is this:

- (1) Use B.P.O. standard for the power limit, i.e. p.e.p. must not exceed 600 watts.
- (2) Ensure that Amateurs cannot blatantly exceed this limit by the use of large final tubes and big power supplies.

In other words, if the final has a plate dissipation of 100 watts and/or the final supply is conservative to 150 watts average power output.

But if the final dissipation rating is 500 watts and the supply conservative to a k.w., it is, i.e.s., regardless of whether a.c. is used or not. The reasoning behind this line of reasoning is a little obscure but perfectly logical.

From the first place it does away with the necessity of continuously monitoring peak power visually.

Everyone knows that if the final and its associated supply is conservative to half a k.w., it is easy to exceed the legal limit by speaking a little louder, or just turning up the gain. If the final has the supply and final is conservative only to the legal limit, driving such a device harder invariably results in non-linearities, in other words, distortion, which one is usually told in short order. Hence there is no future in trying to exceed the legal limit. Such an enforcing power measurement checks only when it is suspicious of ratings of the final and associated components, the Department would be both itself and the Amateur a lot of trouble.

—I. F. Berwick, VK3ALZ.

YOUTH RADIO CLUBS

Editor "A.R.", Dear Sir,

In reply to the Federal Comment on Youth Radio Clubs in November "A.R." and a letter to the Techbulletin in the earlier issue of this year, I would like to put forward a plea for greater assistance in the conduct of Youth Radio Clubs.

During the past three years I have been conducting a School Radio Club with an average attendance of thirty members and although I have been successful through my column and received some equipment, much of it has not been of a great deal of use. Most of the radio sets were almost beyond repair or so badly out of alignment that they have to be replaced. I had to spend many valuable hours getting something working in them.

Most of our members are under 15 years and are not able to do a great deal for themselves. Two have this year become Junior Associate members of the W.A.S.T. Club.

From W.A.S.T. only mention High School Clubs, but in Victoria we have many Technical Schools, such as ours, where it should not be hard to start a Radio Club.

For years now I have been constantly in touch with Rex Black, VK2YA, and have been using some of the ideas in N.S.W. course instruction. The cost of parts, particularly tuning condensers and earphones, prohibits many boys making even a crystal set; some of the club boys have had a crystal short wave set and a few have dual wave sets fitted with a special breadboard tuner. I have helped a few boys have an aerial and a short wave set, described by me in the Feb. '62 issue of "A.R.", is very helpful and gives some satisfaction and a taste of better s.w. listening. The lack of interest in the VK3 S.W.L. Contest by the VK3 S.W.L. section. One of the main reasons again is lack of finance to

TASMANIAN HAMFEST

The largest gathering ever of VK7 Amateurs, their families and friends took place at Campbelltown over the week-end of 24th and 25th November, 1962, on land generously made available to our hosts by Mr. J. B. Murray, head. The setting was on the banks of the Macquarie River, some 200 yards or so from the main road on the property, in a nicely wooded and grassed area.

The organising committee, led by Ted TEJ and associate Don Porthouse, did an excellent job in providing an alternate public address system, a suitably large fire with boiling water virtually continuously available, and a programme of events for the day. The mud, just in case the local water supply might be impure, or such local water supply might not be to the taste of those in attendance. Full justice was done to both containers.

In the vicinity of 200 persons attended this function. The programme was as follows: A cricket match between the Southern Zone and The Rest on Saturday afternoon, followed by a scramble, with a barbecue that evening. On Sunday, there was a hunt, based on 3.5 and 144 Mc. bands, followed by a auction of surplus gear in the afternoon.

I noticed that the following licensees were in attendance at some time or another:

From the Northern Zone: VKOK, VKLZ, TFF, TCA, TJP, and T2BZ. From the North-Western Zone: VKH, T8B and TXL. From the Southern Zone: TCT, T8F, TYL, T4L, TCH, TKA, T2B, T2B, T4L, T4L, T4L, T2A, T2A, T2EE, T2AL, T2DM, T2AK, T2Z, T2OO, T8Z, T2AX, TJO, T8C, and T2L. My humble apologies and thanks may have inadvertently missed out from this list.

Among associate members, I noticed Alan Landers, Don Porthouse, Geoff Ludwick, and Gil Riddard.

Our Divisional Publicity Officer, Ted TEJ really excelled his best efforts to date. He organised the items on the programme, and the Hamfest; items in the Hobart and Devonport press before the function, and items in the Hobart, Launceston and Devonport press during the function.

2 filmed quite a deal of our activities, and a very respectable allocation appeared on News Reel the following night. It is possible that this film may be used in a later Week-end Magazine. Congratulations Ted on a wonderful job of publicity.

I have not discovered who won the cricket match. All I have discovered is that "we won" but that comes from both teams. Denial of the D.K. and the T.2BZ. The stations. It is rumoured that his only competitor, TJO, went to sleep on the river bank but this must surely be only an excuse.

It was very wonderful indeed to see our Patron, TBO, Len, was present on the Sunday and many were the eyeball QSOs he participated in.

The barbecue was a great success on the Saturday night. The 5-gallon container consumed at this barbecue evaporated in about 10 minutes. It is reported that the arrival of T2AK wearing his most becoming fez at about 2330 hours was greeted by a tremendous cheer. I am told, fit to waken Campbelltown, six miles away. The arrival of T2AK was tempted to wake the prostrate multitude at 0330 hours by the capricious use of the public

buy or the ability to make a really good set. Many of the twelve members present, including lad and do not know them all, own professionally built sets, whereas the majority of our members do not and therefore cannot compete with the above twelve. This disheartens so many beginners who may have a junk set and do all they can to get some results. If our members had more sets, it would be difficult to make parts for the converters described in "A.R." and if kits of coils, chokes, or any special parts could be produced in quantities by most of the more experienced members, it would help.

Last year I offered an A.R.R.L. Handbook for the members of the club who could suitably s.w. unit, adaptor or set that could be easily made by beginners but so far nothing has been produced. The offer still stands for 1963.

If our members had more sets, we could expect greater participation in competitions. I may be a "purist", as mentioned on page 14, Nov. "A.R.", but I am sure that I am now for forty years I feel that the old spirit of the true Radio Ham has been lost and unless we can do something along the lines of the Hamfest, we cannot expect to hold the interest of the younger generation.

—Barry Major, WIA-13102.

address system. Despite his best efforts, many of the prostrate slept on.

Barney T2AK was responsible for hiding the traps for the foxes in his inimitable style. The traps were located on the far side of the river. Terry TCT, not to be denied, uncovered the 3.5 Mc. rig in about 25 minutes. Several of the boys were in attendance at the river from the spot, but there was no way over the water without a long trek through Campbelltown. The flying start for the hunt was filmed for television and it was an awe-some sight, too, with about 25 vehicles jockeying for positions.

The success of the afternoon brought forth some spirited bidding for the varied selection of disposals gear. It was pleasing to observe that the 40 or so hams who were present nearly all sported some form of Amateur gear, whether it be a mobile tx, Amateur band rx, direction finding gear, or merely a converter, truly a most encouraging sign of activity.

Yes, this Hamfest was a great success, and truly a definite sign of progress within the VK7 Division.



VHF NOTES

(Continued from Page 22)

and rhombic antenna. I was pleased to provide for John, who first used the H.I. using the ex-Basil (ZBE) 522 tx and is receiving with a 6 element beam and t.v. turret. Danny T2DM has made a reappearance on the band using a ex-Basil "Walkie-Talkie" single tube transceiver. Ian T2Z has had the loan of Barney T2AK's 522 pending completion of his new 522. The success of the night, around 1930. Things are definitely looking up on this band and it should be really hectic for the John and the Memorial Contest.

After schedule with the north have resumed after a month's break and with the summer weather upon us it is hoped to establish contact soon.

The only thing to report for this band is that David T2AY has completed a tx and converter and is hoping for great things for the coming DX season. 73, T2EZ/7.

PAFAP

November produced one excellent opening to VKX on 30 Mc. on the 15th. The band opened at 0800 and numerous contacts with VK2-4.5 and 6 were made by ZBZV and 8AU. The opening faded out at 1500 but the band opened again for a short time. No other contacts were worked and VK4 heard. Another opening occurred on 23rd when VK4-2 were worked between 1745 and 2100. No other contacts were made during the month although VK6s were heard for a few minutes around 1800 on 20th, and at the same time on 24th a few VK4s and VK6s were heard for about 15 minutes.

VK6AS is now operating around 50.24 Mc. and although not heard yet in Port Moresby was called by some VK6s on 25th and reported hearing both ZBZV and 8AU at his QTH (Wewak, T.N.G.) on the same day. Regular QSOs since have not resulted in a QSO.

ZBZV was very active in the 15m band, T.N.G., from mid-Dec. to early Jan. As 8CK is currently inactive with power supply troubles, it appears at the moment that your contacts with 8CK are being made by 8CK active on 6m during the holiday season. Oh those pile-ups! Please note that 8AU gives priority to replies not made on his calling frequency.

144 Mc. Tests are being carried out daily on 2 m with 4KT at Townsville, so far without results. If any of our members are making time these notes appear, it is likely these skeds will be discontinued until the return of the S.E. trade wind season in late February or early March.

On the one-eyed monster DX front, pictures were received from T2NQ on 12 of the first 15 days of Nov. The picture was received for the whole transmission time (1730-2216) on the 14th, the measured signal strength was being a V, but the picture being readings are accurate, being carried out by the local R.I. Nothing has been seen since and it appears that a nocturnal duct path exists during the season of the S.E. trade winds between Port Moresby and Townsville. Channel 2 was received on seven occasions during the month, mostly ABQZ. The picture was received from T2NQ on 12 of the first 15 days of Nov. The picture was received for the whole transmission time (1730-2216) on the 14th, the measured signal strength was being a V, but the picture being readings are accurate, being carried out by the local R.I. Nothing has been seen since and it appears that a nocturnal duct path exists during the season of the S.E. trade winds between Port Moresby and Townsville. 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FEDERAL AND DISTRICT MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

Oak VRAAR of Tonga Tapu whose home call is WEXEK, states that cards are presently at the printer. He estimates it will take two to three months to get them out.

Cards have been distributed for all venues in Australia from which Dick McKelcher, W0MLY, operated during his recent DX-pedition to that continent.

Some cards have also been received from PCB, PC—the first from Corsica ever sighted at this Bureau. However, those to hand are only a fraction of the total owing to many VKs. Seems to be no system in issue of cards as some VKs got two for the same QSO, others got two for separate contacts, while the majority of us got none at all! However it may be only a start.

Hal Sears, KH6LQ, stated he was visiting Australia for a few weeks covering Nov.-Dec. 1962. Anyone see him?

The QSL Bureau for Czechoslovakia sent two large despatches to this Bureau early in December. Total cards was 500. Unfortunately the entire despatch was intended for Australia! Carelessness such as this involves other Bureaus in needless heavy postage and it delays this year.

Information is to hand on the W.A.N.R. award issued by the N.R. Amateur Radio Club. It is based on the number of contacts with 10 different VQ2 stations in five different towns! Unlikely to interest any but VKs and VK6, but full details may be had on request.

Information on the W.A.D.M. Contest 1962, held mid October, was received too late for publication in this issue. The contest consists of five Overseas Contest Committees should use air mail for info, on their contests or realise that matter by surface mail should be issued some months in advance of the event.

Cards through the Bureau have kept up surprisingly in view of the comparatively poor conditions obtaining through 1962. The yearly total will not be far behind that of other years.

Al Scarlett, W3CC, is looking forward to his proposed visit to Keith XYL, Ethel, and the family. His finalisation of the visit is still stopovers in all States excepting VK6 and 7. John W6YU also expects to visit Australia again this year.

Copies of "CQ" for most months of 1962 are available for free from this Bureau. First in gets them but postage is required. Write and if you are the lucky player, I will advise the amount of postage (if any) needed.

Here's good luck, good DX and 100 per cent. QSL returns for 1963.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The November meeting of the N.S.W. Division was held at Wireless Institute Centre on Friday 23rd and a well attended meeting heard an excellent lecture by Harold 2AAH on the Transistor. S.A. exciter. After a technical discussion, Harold produced a complete s.s.b. exciter built on a matris board 6 x 6 inches.

Mobile operation on 7 Mc. is on the increase around the Sydney area and while most of the boys are contented with local QSOs on the move now in seasonal VK2s are also 2FM has worked VR2 and ZL on the way home from work. Active VK2s heard on 7 Mc. were 2FJ, 2FV, 2FZ, 2SW. After a technical discussion, Harold produced a complete s.s.b. exciter built on a matris board 6 x 6 inches.

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Don't forget the N.S.W. Division's Convention over the Anniversary Week-end, 73, 2VL.

HUNTER BRANCH

The Nov. meeting of the Branch was held on Friday 9th, there being eleven members, nine associates, and four visitors present. President Stuart 2AYF was absent on business, no doubt selling selling, and Lionel 6CS was also unable to be there. Bill 2XT was on his Japanese holiday and this meant that the meeting was without a chairman. But not for long. Some of our executive officers took their box of straws and gave me the short cut. Because of all this, the business session of the meeting was quite short and then we all settled down to listen to the lecturer of the evening, Keith 2BK. He had brought with him one of those "Quintal battleship" rx's complete with converters fastened to the lid and it was on the general theme of rx's that he based his remarks. Two other most interesting pieces of gear were on display, an s.s.b. transceiver and a 144 s.a.b. rig. These caused a great deal of discussion and the session of questions following Keith's talk was most valuable and showed the sharp division of thought between s.s.b. and a.m. At the conclusion there was another of those seal auction sales which have become part of the Hunter Branch scene.

Around the Branch this month it seems that everyone is preparing for the festive season, so no doubt there will be plenty of activity as you read this. No sensational developments have been reported, but the boys are all very rash promises about getting gear on the way were made months back. The lads from the coast city are still busily engaged in selling t.v. and hi-fi. It was a surprise to hear the active but Peter 2AYF is reputed to have a quite interesting dx talking device almost completed. An ill wind has blown the sale of all t.v. stations from his QTH and he tells me that his landlady is complaining about the neighbours hurling missiles at the house. He has a cur, though, and it's off.

During the month I was fortunate to be invited to the Radio Founders' Day Dinner of the I.R.E. to stand in for Stuart who could not attend. It was a function that I heard a most interesting fact. Marconi was, believe it or not, an Irishman. I have this on very good authority and although I don't go to him here, I'll pass on the details to any who wish at a later date. Or you could see Prof. Auchmuty from the University College who imparted this information to those at the Dinner. Congratulations are in order for Bill 2ZK who has been awarded a Ph.D. for some original research on s.s.b. rigs. Although he's Dr. Bill now I expect we'll still call him by the same name as always and this may be a lot easier from now on, too, because he has branched new rx and has become an Amateur again after the long studies.

John 2DZ, of whom we hear little these days, is still quite active as time permits and has been getting on the s.s.b. rig. Although on 15 mc. Activity on the lakeside is much as usual with Jim 2AHT still among the DX and Bill 2ZL is the most reliable signal on the band. On 15 mc. I am told he says who's the aerial, but I believe this is open to discussion. Our associate friend, Bruce, must be thinking of buying or buying or buying or buying with a well-turned loading coil for a mobile whip. Perhaps he is going sheep mobile during the time off his s.s.b. rig. Four boys have joined from the lakeside and a greeting goes out to Allan, Allen, Ray and Ross. The club station at Rooragall is back on the air again after an enforced stop for examination, but, of course, with the other lucky chalk pumps, will be off the air for another month and this year, I think, just the same. He has almost three weeks already. Bill 2ZWM says he wouldn't swap his job with anyone, during

SILENT KEY

It is with deep regret that we record the passing of—
VK3JW—C. T. Biggs.
VK3TJW—W. S. (Bill) Tregear

the holidays. Mobile gear is being contemplated by another of our members but I am not permitted to reveal his name just now. I suppose he is getting ready for the Convention at Dural, and, from present indications there will be a good roll-up of Branch members at this function.

I suppose by this you have all made the usual resolutions. Well here's another to add to the list. I resolve not to attend the Branch meeting in January's supposed 73, there isn't one. Next meeting is on the second Friday in February which is the 8th, and the meeting place is the University College, Tighes Hill. Make another resolve to attend this and as many other meetings as you can.

The President and the boys extend to all members the very best of wishes for a happy and successful year. Since I have said all our lecturers for 1962 and to all others who have helped to make the Branch meetings and activities a success. And the hope that we all can do even better in the year to come. 73 for '63, 2AIX.

VICTORIA

13th ANNUAL STATE CONVENTION

The State Convention of the Victorian Division was held in Ballarat on the week-end of the 3rd and 4th Nov, 1962, and hosted by the South Western Zone. The Convention went to a good start when local and visiting Hams assembled at Craig's Royal Hotel for the Convention meeting. The first speaker was 2VL after 4 p.m. Some lively discussion resulted and it looked as if some of the boys were willing to spend the next 40 hours thumping the table. However, parched throats and waiting XYLS won through at approx. 6 p.m.

At 7 p.m. in the Prince's Room, Craig's Royal Hotel, about 70 Hams, XYLS and guests gathered together to do justice to a seven-course Buffet Dinner. The buffet style dinner proved to be very successful as it was possible for everyone to move freely around the room. In fact, I am sure everyone was able to meet everyone else and from what I saw the XYLS, in particular, enjoyed the evening more than the Hams. The group was very even been to. The guest of honour, Mr. Murray Byrne, M.L.C., was circulated freely among the group and was undoubtedly impressed with the jovial air of Ham fellowship, which prevailed around the table. Later in the evening, The Honourable J. Dudley Erwin, M.H.R., stranger to the Ham fraternity—dropped in and consented to present the trophies for the gear display and lucky door competition.

The evening was diverted for a while by a short lecture on "Radio Astronomy" given by Brian 3ZBS, who gave a brief outline on the general principles of the science, mentioning a few of the more mysterious and mysterious 15 metre emissions from the planet upstart.

Sunday dawned warm and slightly overcast. It had rained each of the seven previous week-ends, so we were a little worried that the alternative undercover site for the Con-

W.I.A., N.S.W. DIVISION ANNUAL CONVENTION ANNIVERSARY WEEK-END

THE ANNUAL DINNER will be held at 14 Acheson St., Crows Nest, on Sat. at 8 p.m. Sub. 25/-.

THE FIELD DAY will be held at Dural on Sunday. Sub. 10/-.

Come along and make this Convention a success. A good programme of events has been arranged.

Subscriptions and Bookings to Bill Shakespeare, VK2AGF.

vention may have to be used. However, when the time came to assemble at BTVE Studios, the sky was still plenty enough and a large gathering had arrived. Between 60 and 70 were conducted over the Studios by the Chief Engineer, Mr. Ken Hardy, BV7G, by the way, has the best scenic view of Ballarat, and the building and equipment are very modern and well laid out. The conducted tour was of such interest and social success that it was long past the scheduled time when we all progressed on to the "shack on the hill".

The QTH of VK3AMH/VK3HW, sometimes mistaken for Radio Australia, is situated on top of the hill just above the t.v. studios and the three white towers, against the skyline, are one of the land marks of Ballarat. The faces of envy as the QMs investigated the mysteries of the shack and antennae were only surpassed by the determined faces of their XYLs. Looks as if a few Ham shacks are in for a broom one way or another.

The 80 mc hunt was to have started from the "hill", however it wasn't, as the hidden tx wasn't heard until too late and instead of the hunters turning up search party arrived, just in time, to call us back for lunch at the "White Swan."

The White Swan Reserve is on the bank of the Reservoir of the same name and was an ideal location for the picnic. The location, with virgin bush flanking the opposite side and hills all around; it proved an attractive and sheltered spot. Some of the cooking pots were sizzling at the picnic lunches spread out. We have no idea of the exact number present, but there was a lot of Ham about and not all of it was in the kitchen.

The all-band scramble started off after lunch and, while the blankets were being waved over the smoking fires, the 1 and 80 mc hidden tx's were being hunted for by the ladies, and although only two miles from the reserve, the first 80 mc hunter, 3JLN, took 18 minutes and was heard at times viewed bulldozing through the scrub for some five or more minutes before arriving at the spot. No 2 mc hunter found the tx although 3ZAA was seen in the distance.

Meanwhile, back at the ranch—I mean "Swan"—the harmonies were busy with 8 lbs. of boiled sweets and sundry snow balls, not to mention 2½ gallons of ice cream—mine were ill, hope yours were of sturdier stock.

The hunters returned, the mobiles were judged, and afternoon tea polished off in that order, then over the various trophies awarded, the final entertainment of the day was presented. This took the form of an auction. Len 3JLN held the hammer in his capable and witty manner, received the bids on the various items. Actually the auction proceeds were enough to cover the expenses of the afternoon. Future Convention organisers may like to take note.

It would not be fair to finish this report without mentioning the support given me by John 3EW, Ron 3ZER, Greg 4ZFD, John 3ZFW, Bob 3ZFT, Don 3PO and Hamish 3ZMV—thanks chaps.

Special thanks also to the XYLs and YLs, to whom fell the usual chores associated with this sort of thing. Also, to Divisional Council, Manufacturers and Distributors, and to those who attended our acknowledgement of your support for what in my humble opinion was a most successful week-end. 73, 4ZBS.

NORTH EASTERN ZONE

3ACD now has a complete s.a.b. outfit; although he is not yet accustomed to operating it, he feels very happy. His first contact was with an SVI, closely followed by a couple of Gs. VKs 3APF, 3ACK, 3ZES, 3CI, 3AWT and 3VL still have their regular trophy daily 2 mc nets at 1230 hrs. 3AWT does not appear to get out at all well, I believe. Where are the Yarraville club boys? 3ZV erected a 60 ft. ex-t.v. tower and is about to antennise it. 3HZ has recently taken a few looks at his cobwebby gear and is half decided to renew electric and come on 80 mc. 3ZJR solidly bashing away at Morse practice; he's stuck at 8 w.p.m. now.

Heard tell our zone was recently awarded the Kinnear Trophy. Another momentous decision of October state rhubarb session was to award the next State Convention to Shepparton. Local boys have been set yammering and we held a meeting to appoint volunteers to organise the usual aspects.

3AUL has numerously been heard praising the wisdom of the decision; the only thing I can say is "wish you were here, Arthur." With a deep sigh and wishing for an XYL, 3Xms with a good operating "63, 3ZASY.

QUEENSLAND

DIVISIONAL DOINGS

A full roll up of members attended the Divisional Council's Nov. meeting. An important decision was the formation of a Junior member section of the Division, a move which followed a letter from the Junior Members' group to accept student members as part of the associate membership with a maximum age of 17 years and a subscription rate of 10/- a year, exclusive of "A.R.". No nominations were received for the 1963 Advisory Committee, and as the P.M.G. Department said the present members were acceptable, it was decided they should continue in office. The Council decided to recommend the following applications for membership to the next general meeting. For member: T. E. Pemberton, 4ZL. For associates: N. D. Stallman and A. E. Watkins.

A total of 33 members attended the Nov. general meeting on 22nd. Chairman, Pat 4KSR, had some disappointing news regarding disposals. He had made a survey and found most sources appeared to have dried up. The meeting was also told a reply had been received from Federal Hqqs. on Division constitution questions, and it had been passed to the constitution committee. Members would be advised about any proposed changes. A

request was made for suggestions for a venue of next year's Divisional Convention.

Joe 2JR on Balun Transformers. It was well illustrated and the information was of a practical nature suitable for any Amateur shaver. The Division has recommended it to country branches and clubs. On Nov. 30, 14 members accepted an invitation by the engineer in charge of the Brisbane City Council's standardising laboratory, Mr. Bruce Gow, to visit the laboratory. This followed a lecture by 3ZAA on measuring methods for the 1963 October general meeting. An interesting night finished with tea and sandwiches.

"BASKET PICNIC" at CASH'S CROSSING

On Sunday, 22 December, 24 members met at Cash's Crossing on the northern outskirts of Brisbane for a "Basket Picnic" which, of course, had Ham Radio for the goodies. The purpose was to examine and discuss power supplies from a W.I.C.E.N. viewpoint. While the XYLs harmonised and friends sipped tea, the OM were around portable motors. Vi 4ZBT showed converter generators attached to a motor mower engine, and Mick 4ZAA had a 400 W. motor and the process of construction. A third member had a unit to fit under the bonnet of a Holden and it was demonstrated to show how it gave no noise at 2 mc tx. The afternoon was unusually interesting for all.

IPSWICH CLUB

The final meeting for the year of the Ipswich and District Radio Club was well attended with 35 present, and applications being received from others. In another activity, 12 members visited the Tennyson Power House for an interesting afternoon. Bill Jehn reminds short wave listeners and associates who wish to be registered as listeners should contact him at P.O. Box 61, Ipswich, for a number.

Stan 4ZT and his son, Doug, at Redcliffe, are reported to have formed a Jamboree Radio Club. They are appealing to members for power supply components to help their young charges get on with electronics. Talking about power supplies, you should get started immediately on your gear for the coming National Field Day on 24 and 25 Feb. If you haven't got it started already, this is an individual event but the Division has been seen to go over the top. Turnout.

Those wanting to practice their VKs should keep an ear out for Steve 4BB and Jeff 4XP who are putting out f.b. signals in south-east Queensland. They are on 3504 kc. at 7 a.m. and 2 p.m. on Sundays and Wednesdays. They would appreciate reports of signals as well as suggestions on the type of transmission. In case you have not noticed, there has been a change in the Outward GSL cards arrangement, and in future all cards should be sent to the Division box, Box 6303.

PERSONAL NOTES

Everyone has been glad to hear the call Bill 4WV back on the air recently. Bill has been in ill-health for some time, but all hope he's right for some more long contacts now. George 4GG mentioned he had ventured to the big boys' club, the Del 4Xys, for about 30 years. Bill 4WS, at wonderful Southport, is sporting a new car. Another man, at 4ZL on the coast, Del 4ZD, at Burleigh Heads, who is now putting in first class signals into Brisbane at least on a new dipole. Apparently it clears the tops of the banana trees by only a couple of feet.

Les 4EH and Sam Weller, 4CZ, have had spells in hospital recently, but both are recuperating at the moment. The plane is still writing. Cliff 4QJ hopes to be on 14 Mc. s.b. with a fairly low power rig inside a few months. Wogs, gremlins, and birds permitting, we mention. We mention. We mention. We have received his licence and is waiting impatiently for his call sign.

After a long hearing a couple of very loud c.v.b. signals in Brisbane recently, chances are you've been hearing 4L 40L and Howard 4WV just "having a practice" across town. Alf has been busy with the calls he's been

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or see. I know he has been gallivanting around all the country banks over the past few months, but he must report in some times. Please, see him.

The Adelaide University Amateur Radio Club and the Prince Alfred College Amateur Radio Club, EUS and SPZ respectively, used to practically live on the 7 Mc. band in the afternoons and early evenings, but seem to have somewhat given it away. Surely the young men and kites are not so stupid as to think it is that a couple of old dodderers would come in handy to do the chores unfortunately associated with the 7 Mc. band.

The Mount Gambier gang held their monthly meeting recently to a good roll-up of members. The most pleasing part being the fact of so many of the younger members coming along. Stuart 5MS is in the process of erecting a tower to put the finish to all towers, and he is far from concerned. The tower at the moment 60 feet up in the air and will eventually be 120 feet high. Erg 5KU has his beam down at the moment, apparently checking up on where his dots and dashes have been going to. Judging by the number of QSL cards continuing to arrive for him they have been getting out very well and certainly good places.

Claude SCH has not been to a meeting for quite a while, so must be assumed to be busy. Leo SCI, who is usually reported in this column as being among the missing, all hope of returning to the air is gone. I have heard on 14 Mc. which certainly looks promising. He has been away in the line of duty for a while, somewhere in the territory of the 500 Mc. band. Ron TCH has had to vacate his shack, but has hopes of moving to a new QTH soon, and also hopes to be in an S. noise area. Well, no crime in hoping. Dale SZL is making good progress with his 100 ft. mast, despite the destructive criticism from all and sundry. Lee SZLS has been working a few stations on 6 and 8 m. but has sometimes alluded to as a d.c. man, I wouldn't know anything about that.

Garry SZGR has been buying up more transformers, so it looks like more power in the offering. What most interests us is how much more power? Trev, and Col Hutchison, along with John Lehmann are rather anxiously awaiting results from the last L.A.O.C.P. not real hopeful, but have their fingers crossed, fellows!

Col SCJ has a new antenna on 2 m. and is well pleased with the results. He is building a new tx for that band and manages to mix the d.c. with it by keeping the lunchtime skeds on 7 Mc. He is coming down to the City of Churches for a week or so and will try and recruit more members to the number of the boys. Try and make it a meeting night, Col.

Well, here we are, the end of another year, more resolutions to make and break, and more insults to receive and hand out. Anyway, the Council and members of the VK3 Division take this opportunity of wishing all Divisions a Happy New Year and all that you want for yourself, and of course as scribe for the

Division I can have the privilege of echoing their sentiments, in fact so genial do I feel that I will extend the same wishes to all of the s.b.b. gang, although I must admit that it is straining my geniality to the breaking point!! To the VK3 scribe (who numbers among his host of friends, etc., etc.) I extend the same greetings, somewhat reservedly, and to the VK4 scribes (who apparently spend most of their leisure time dashing to and from the General Post Office, for what reason I would not have the faintest idea), I can only say, all the best for the coming year, especially in the banana line. Last, but not least, all the best to the Publications Committee and to my pal-walky the Editor, may his red pen turn round and bite him, I can only say, Happy New Year, and will the chances stand another nought on to my salary??? 77 88, 73, de 5PS—Panky to you. (We graciously add another nought to your salary, even though you deserve a cross.—Ed.)

TASMANIA

Geoff TZAS has not been feeling the best just recently, and he has had a sojourn in the Royal Hobart Hospital. We wish you a speedy complete recovery, and hope to see you along at the coming meeting, fully restored to health. Alex 7AX has just about got his act right working on 2 m. and 3 m. VKT adds yet another exponent to duck talk.

Charlie 7KS had two weeks on the mainland at the end of November on holidays, and took his 100 ft. mobile tx on 80 m. Snowy TCH lost a daughter and gained a son-in-law about the middle of Nov., and the function apparently passed off very agreeably. By the time this goes to print, Tom 7AL should be back on the air after an absence of about five years. Welcome to the ranks of the active, Tom. David TZAY has converted a 522 set to work

HAMADS

Minimum 5/-, for thirty words.

Extra words, 2d. each.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 36, East Melbourne, Ck. Vics, by 15th of the month, and remittance should accompany the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

FOR SALE: All-band Trans., Geloso 2-stage V.f.o., 807 final, Geloso pi output, p.p. 807s modulator without power supply, £30. Geloso G209 Receiver, excellent order, £135. V.h.f. 2 metre Trans., QQE08/40, 807 modulator with power supply, £45. 2 metre Converter, 6ES8, 6BL8, with crystal, £10. New Grundig G.d.o., complete, £20. 5" C.ro. home-built, R.T.V. & H. wideband design. 40 Mc. tuner, 20 Mc. valves and components to be listed later. All property land VK3JJW. Enquiries to VK-3FY, 128 High Street, Kangaroo Flat, Vic. Phone 7274.

FOR SALE: Marconi CR150 Double Conversion 2 to 60 Mc. Receiver, excellent condition, £65. Geloso V.f.o. to pair 6146s, pi output, 100 watts phone, 120 watts c.w., self contained power supplies, £35. Acos Mike and stand, £3. VK8GU 10 and 15 m. 5 element Beam, over 9 db. gain and 25 db. front-to-back ratio, excellent performer, £15. 40 Mc. galvanised steel tower, £40. Command 3-4 Mc. Tx, brand new, £5. Taylor Mutual Conductance Tube and Circuit Tester, £25. A.W.A. Tape Recorder, £35. Scope Iron and transformer, £3. Universal Avo-Minor, £3. Tubes 815, 83, 717A, 807s, etc., £3. Books: R.S.G.B., A.R.R.L. Handbooks, A.R.R.L. Antenna Handbook, Novice

on 6 m. and has also got a Command v.f.o. working well on 2 m. Nv. 7ZEE has also been playing around with 2 m. mobile gear, as has Danny 7ZDM.

The phenomenon of temperature inversion was in evidence about the end of November and it will be interesting to analyse results of v.h.f. activity during that time. Here is a project for you v.h.f. boys.

We have had the following visitors to VKT during Nov. 1954: Luke 5PZ and Jamar 3PW. Welcome to each of you. We hope your examples will be followed by many more of the Amateur 2 fraternity.

Alan TMY has moved into his very nice new home on the waterfront at Cremorne after having sold his farm thereabouts. He still has a 100 ft. tower for TMY, but that project has a reasonably high priority. The Division extends best wishes for success to the half dozen or more members sitting for their licences in January. We hope to hear you all on the air shortly, 73, TZZ.

NORTH-WESTERN ZONE

Here we are at the end of 1952. The Hamfest is over and Christmas just about over. The Hamfest was a great success, the North-West Zone being represented by 73, TZZ and 3PW. You mobile boys keep your gear well oiled as there may be a Northern Hamfest in Feb. 1953 on 2 m. and 3 m. mobile! Maybe we could show those boys how to do a "fox".

The bands have been fairly poor lately, but a little 30 m. DX has been getting through, and a little 2 m. DX has been getting through. Tomatoes are doing well, so David will no doubt be "dragging" 'em in with a new rx in the near future.

As we make our New Year resolution in '53, you will no doubt remember such things as "I will use the bands," "I will resist telephony," and "I will attend meetings as often as possible," and associates, "I will study for my A.O.C.P." 73, TZZH.

and Technician, Beam Antennae, Radio and Hobbies, Amateur Radio, etc, £5. VK6RE, 10 Craddock Road, Merredin, W.A.

FOR SALE: One pair only, little used, "Redifon" 9 transistor crystal controlled 27.120 Mc. Transceivers, using 6 standard size 915 cells. Each incorporates tunable broadcast receiver. Ideal for Citizens Radio use, fishing, shooting, golf, boating, etc. No separate licence required if users are licensed Hams. First cheque for £40 secures by post. VK5II, 8 Somerset Ave., Fulham Gardens, S.A.

FOR SALE: 13-tube A.W.A. Communications Receiver, 520 Kc. to 21 Mc., £20. RF24 Converter, 28 and 21 Mc., £5. Peter Field, 46 Bagot Rd., Elizabeth South, South Aus.

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SELL: ATR2B in good condition, no reasonable offer refused. Ring Melb. JU 3920.

SELL: BC342, 240v. operation, only few mos. VK5RN, FX 1210 after 20th Dec. £25.

SELL: 100 watt Tx, Geloso V.f.o. in steel cabinet, modulator Class B 807s, plus power supplies, £55. Oscilloscope M/D32 and power supply, £15. Command Transmitters, 4 to 5.3, and 5.3 to 7 m. 2, £2. Transceiver ATR4B, £5. M. Q. Bested, VK2ABE, Box 446, Griffith, N.S.W. Phone 560.

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